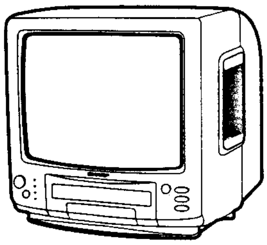
SHARP

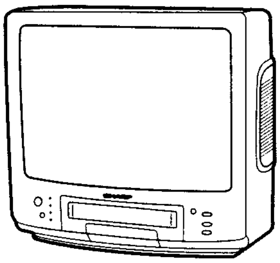
SERVICE MANUAL
维修手册

S54S2VT1418M/

TV/VCR COMBINATION
TELEVIDEO

Chassis No. VP-1


VT-1418M


VT-2118M

MODELS
型号

VT-1418M
VT-2118M

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

为了用户安全起见（根据一些国家的安全规程的需要），应将电视机保持于最初的状态，而且只能使用与指定物相同的部件。

FEATURE

- Full Auto Search Tuning System
- On Screen Digital Channel/Sound Level/ Tuning Display, Control (Contrast, Colour, Brightness, Tint, P-Tone) Symbol and Level
- Blue Back Off Timer
- 40 Key, Wireless Remote Control Unit
- Channel Skip
- High Speed Video Search System
  - PAL/SECAM: 7 times
  - NTSC: 5 times(SP), 15 times (EP)
- Dew Warning Indicator
- DPSS (Digital Program Search System)
- Quick Start Playback with Full Loading System
- Still/Slow Function with Noiseless Frame Still
- Digital Automatic Tracking Control
- Automatic Playback Function
- AHC (Automatic Head Cleaning System)

主要功能

- 全自动寻台调谐系统
- 接收频道、音量等级、图象控制（对比度、彩色、亮度、色调、影调）等级的在屏数值表示功能
- 蓝色背景定时自动关机功能
- 40键无线遥控器
- 频道跳选功能
- 磁带图象快速查索系统
  - PAL/SECAM制式：7倍走速
  - NTSC制式：5倍走速（SP方式）
    15倍走速（EP方式）
- 机内结露警告指示灯
- DPSS（数值式节目查寻系统）
- 全自动磁带装挂系统的快速演放始动功能
- 无噪声帧静止的图象静止及慢动作演放功能
- 数值式自动跟踪控制功能
- 自动演放功能
- AHC（磁头自动清控系统）

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis. To prevent electric shock, do not remove cover. No user — serviceable parts inside. Refer servicing to qualified service personnel.

警　告

该电视机底盘的有些部分通电。当维修本机底盘时，请在电源线插头和电源插座之间使用隔离变压器。为了防止电击的危险，不要去拆下机盖。在里面的部件，不是使用者所能维修的，必须委托够格的维修人员来进行维修。

SHARP CORPORATION

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SPECIFICATIONS

■ OUTLINE OF THE PRODUCT

Power Source: 110~240 V AC, 50/60 Hz
Power Consumption: **VT-1418M**: 77 W
VT-2118M: 98 W
Receiving Broadcast Standard: PAL System B/G, I, D/K, M
Receiving Channel: VHF; 1A~S20
UHF; E21~US83
Receiving System: Sound; 5.5 / 6.0 / 6.5 / 4.5 MHz
Colour; PAL / SECAM / NTSC
Antenna Input Impedance: VHF/UHF; 75 ohm Unbalanced (DIN)
Video Signal: Input; 0.5~2.0 Vp-p / 75 ohm (RCA)
Output; 1.0 Vp-p / 75 ohm (RCA)
Audo Signal: Input; – 8 db / 47k ohm (RCA)
Output; – 8 db / 1k ohm (RCA)
Temperature: Operation; 5° C to 40° C
Strege; – 20°C to 60°C
Dimentions (Approx.): **VT-1418M**: 392 mm (W) x 371 mm (H) x 395 mm (D)
VT-2118M: 523 mm (W) x 488 mm (H) x 483 mm (D)
Weight (Approx.): **VT-1418M**: 14.2 kg
VT-2118M: 26.1 kg
Cabinet Material: Plastic
Accessories: ☐ Operation Manual
☐ Infrared Remote Control Unit
☐ Dry Batteries, Type AA (x 2 pcs)
☐ AC Plug Adaptor

■ TV SECTION

Viewing Area: **VT-1418M**: 33.54 cm Diagonal Measurement
VT-2118M: 50.8 cm Diagonal Measurement
Picture Power: **VT-1418M**: 22.0 kV at 800 μA Beam Current
VT-2118M: 25.0 kV at 1100 μA Beam Current
Speaker Output: **VT-1418M**: 1.5 W at Max. (8 cm Round Dynamic x 2 pcs)
VT-2118M: 1.5 W at Max. (8 cm Round Dynamic x 2 pcs)
Picture Tube: Type; **VT-1418M**: VB370BVBK1U-S (Tint Tube)
VT-2118M: VB51JFC61X/*P or VB51JSY61X/*S (Tint Tube)
Heater; **VT-1418M**: 6.3 V, 300 mA
VT-2118M: 6.3 V, 680 mA
Focus; High Bi-Potential Electrolstatic

■ VCR SECTION

Outline: VHS Video System Colour Video Cassette Recorder
Format: VHS PAL/NTSC Standard
Video Recording System: Rotary Slant Azimuth 2-Head Helical Scan System
Luminance: FM Recording
Chrominance: Low Frequency Converted Direct Recording
Video Signal System: PAL/SECAM/NTSC 3.58 MHz Colour
Cassette Tape: VHS Type Video Cassette Tape
Tape Width: 12.7 mm
Tape Speed: PAL; 23.39 mm/s (SP), 11.70 mm/s (LP)
NTSC; 33.35 mm/s (SP), 11.68 mm/s (LP·PB only), 11.12 mm/s (EP)
Recording/Playback Time: SP; Max. 240 min (with E-240)
LP; Max. 480 min (with E-240, PAL only)
EP; Max. 480 min (with T-160, NTSC only)

Note: The antenna must correspond to the new standard DIN 45325 (IEC 169-2) for combined UHF antenna with 75 ohm connector.

Specifications are subject to change without prior notice.

IMPORTANT SERVICE NOTES

Maintenance and repair of this receiver should be done by qualified service personnel only.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10 k ohm Resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed:

1. VT-1418M: When repairing the circuit, be sure not to increase the high voltage to more than 25.3 kV, (at beam 0 μA) for the set.
   VT-2118M: When repairing the circuit, be sure not to increase the high voltage to more than 29.3 kV, (at beam 0 μA) for the set.
2. VT-1418M: To keep the set in a normal operation, be sure to make it function on 22.0 kV + 1.5 kV – 2.0 kV (at beam 800 μA) in the case of the set. The set has been factory — Adjusted to the above-mentioned high voltage.
   VT-2118M: To keep the set in a normal operation, be sure to make it function on 25.0 kV ± 1.5 kV (at beam 1100 μA) in the case of the set. The set has been factory — Adjusted to the above-mentioned high voltage.
   ∴ If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
3. Do not substitute a picture tube with unauthorized types and/or brands which may cause excess X-ray radiation.

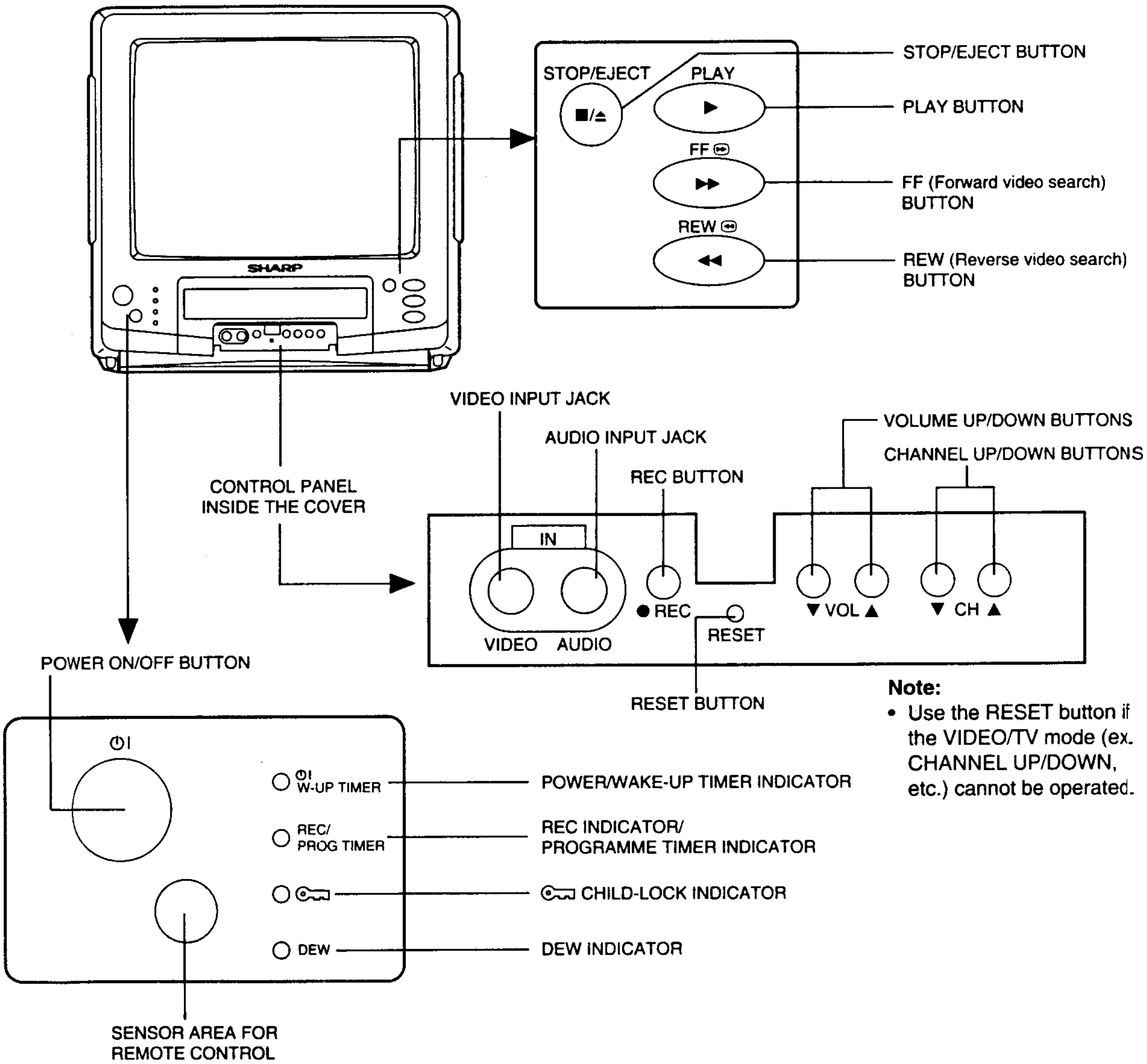
BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.

LOCATION OF USER'S CONTROL

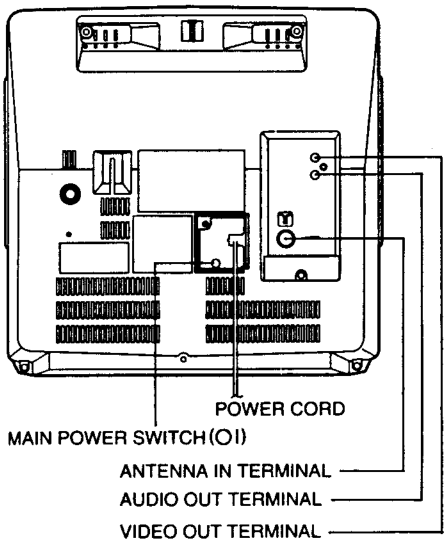
FRONT


SHARP
STOP/EJECT
PLAY
FF
REW
STOP/EJECT BUTTON
PLAY BUTTON
FF (Forward video search) BUTTON
REW (Reverse video search) BUTTON
VIDEO INPUT JACK
AUDIO INPUT JACK
REC BUTTON
VOLUME UP/DOWN BUTTONS
CHANNEL UP/DOWN BUTTONS
CONTROL PANEL INSIDE THE COVER
IN
VIDEO
AUDIO
● REC
RESET
▼ VOL ▲
▼ CH ▲
RESET BUTTON
POWER ON/OFF BUTTON
W-UP TIMER
REC/ PROG TIMER
DEW
POWER/WAKE-UP TIMER INDICATOR
REC INDICATOR/ PROGRAMME TIMER INDICATOR
CHILD-LOCK INDICATOR
DEW INDICATOR
SENSOR AREA FOR REMOTE CONTROL

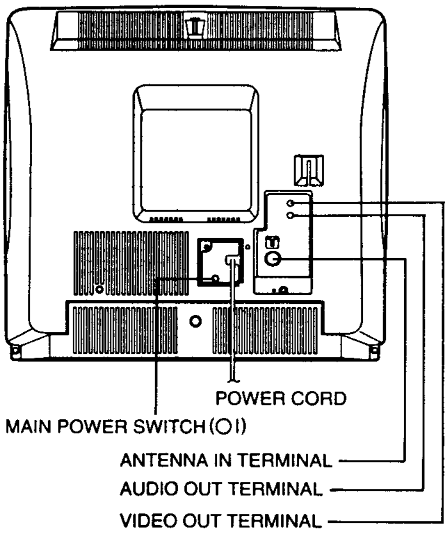
Note:
- Use the RESET button if the VIDEO/TV mode (ex. CHANNEL UP/DOWN, etc.) cannot be operated.

REAR

VT-1418M


POWER CORD
MAIN POWER SWITCH (O I)
ANTENNA IN TERMINAL
AUDIO OUT TERMINAL
VIDEO OUT TERMINAL

VT-2118M

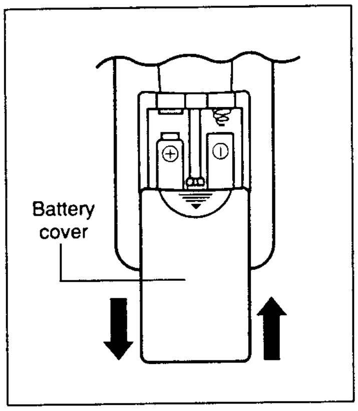

POWER CORD
MAIN POWER SWITCH (O I)
ANTENNA IN TERMINAL
AUDIO OUT TERMINAL
VIDEO OUT TERMINAL

LOCATION OF USER'S CONTROL (Continued)

Remote Control Battery Installation

The remote control lets you operate this product at a distance. Just aim the front of the remote control at the photoreceptor window situated on the front panel and press the appropriate buttons.

Inserting the Batteries


Battery cover

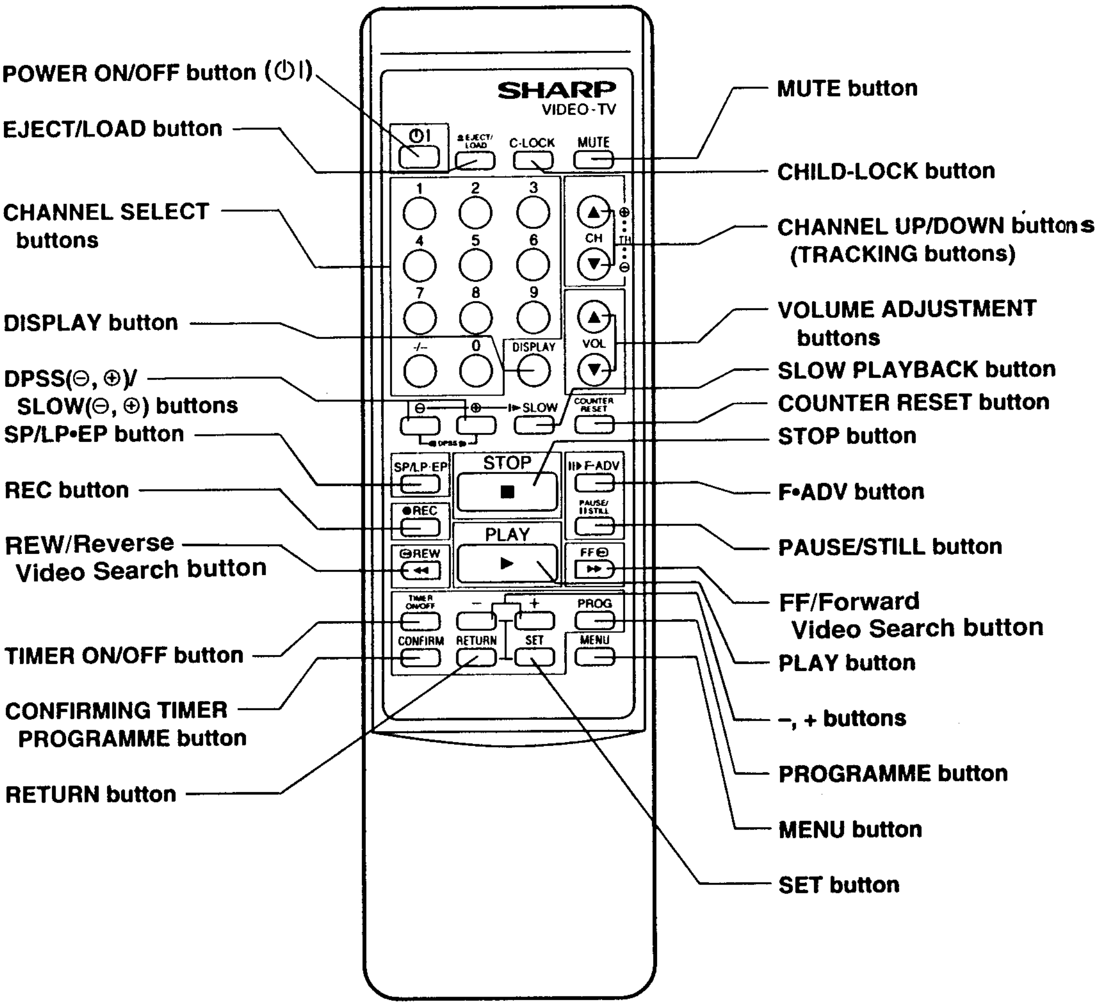
The remote control operates on two R6 (UM/SUM-3, AA) 1.5 volt batteries (included). If the remote control does not operate or fails to function normally due to weak batteries, new batteries can be purchased at electronics or camera stores.

❶ Open the battery cover. (Remove any old batteries that may be in the remote control.)

❷ Insert new batteries and match their polarities (+ and –) with the markings inside the compartment.

❸ Replace the cover.

Location of Controls

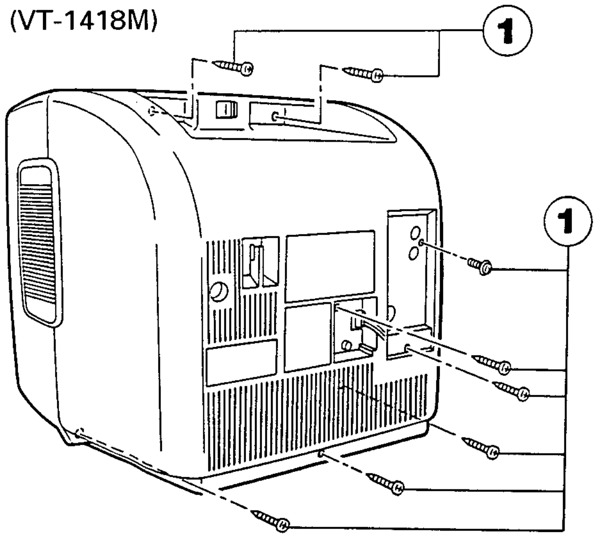

POWER ON/OFF button (⏻I)
EJECT/LOAD button
CHANNEL SELECT buttons
DISPLAY button
DPSS(⊖, ⊕)/ SLOW(⊖, ⊕) buttons
SP/LP•EP button
REC button
REW/Reverse Video Search button
TIMER ON/OFF button
CONFIRMING TIMER PROGRAMME button
RETURN button
MUTE button
CHILD-LOCK button
CHANNEL UP/DOWN buttons (TRACKING buttons)
VOLUME ADJUSTMENT buttons
SLOW PLAYBACK button
COUNTER RESET button
STOP button
F•ADV button
PAUSE/STILL button
FF/Forward Video Search button
PLAY button
–, + buttons
PROGRAMME button
MENU button
SET button
SHARP
VIDEO-TV
EJECT/LOAD
C-LOCK
MUTE
1
2
3
4
5
6
7
8
9
-/--
0
DISPLAY
CH
VOL
SLOW
COUNTER RESET
DPSS
SP/LP·EP
STOP
F-ADV
●REC
PAUSE/STILL
PLAY
REW
FF
TIMER ON/OFF
PROG
CONFIRM
RETURN
SET
MENU

DISASSEMBLY AND REASSEMBLY

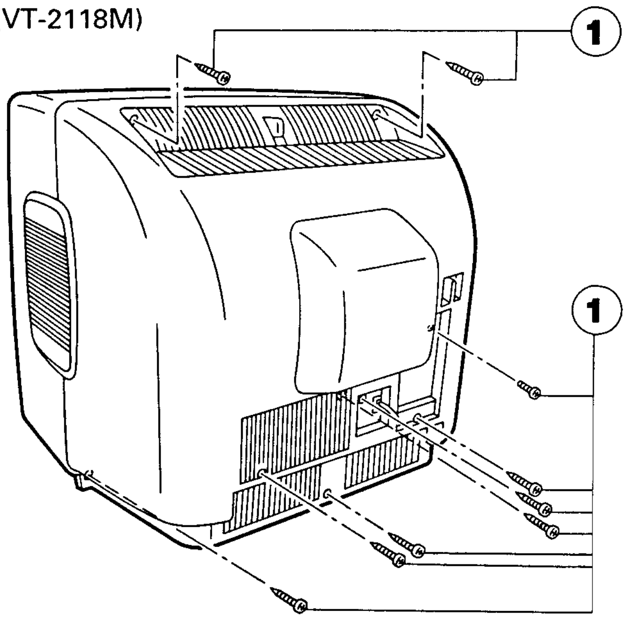
■ TV SECTION

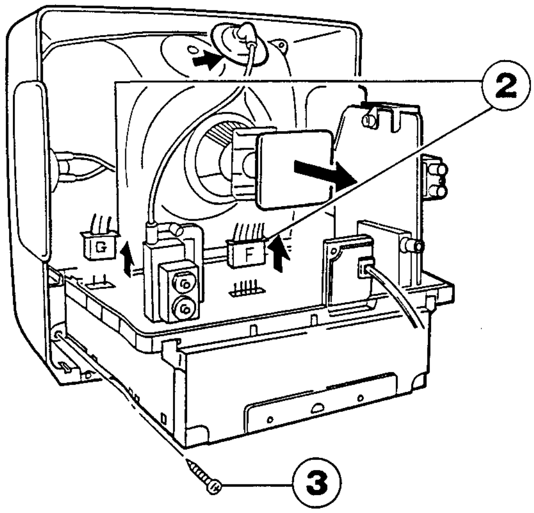
1. Remove the eight screws off the rear cover. (VT-1418M)
1. Remove the nine screws off the rear cover. (VT-2118M)
2. Disconnect the F and G connectors from the main PWB.
3. Remove the screws off the video unit and take out the unit.
4. Remove the two screws from the main PWB and separate the PWB from the video unit.

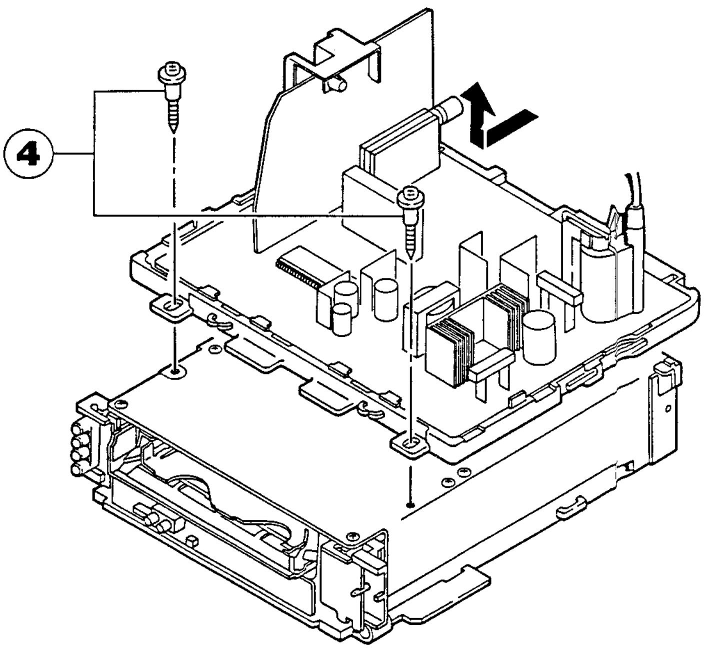
(VT-1418M)



(VT-2118M)





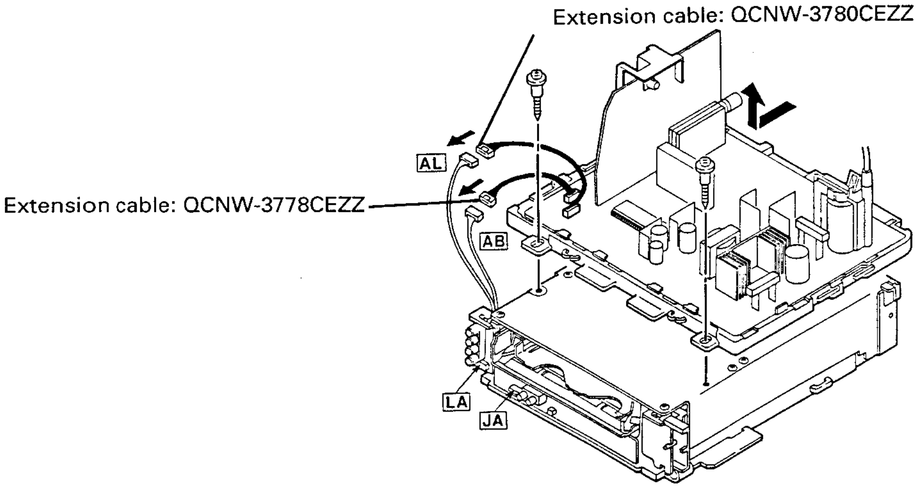


DISASSEMBLY AND REASSEMBLY (Continued)

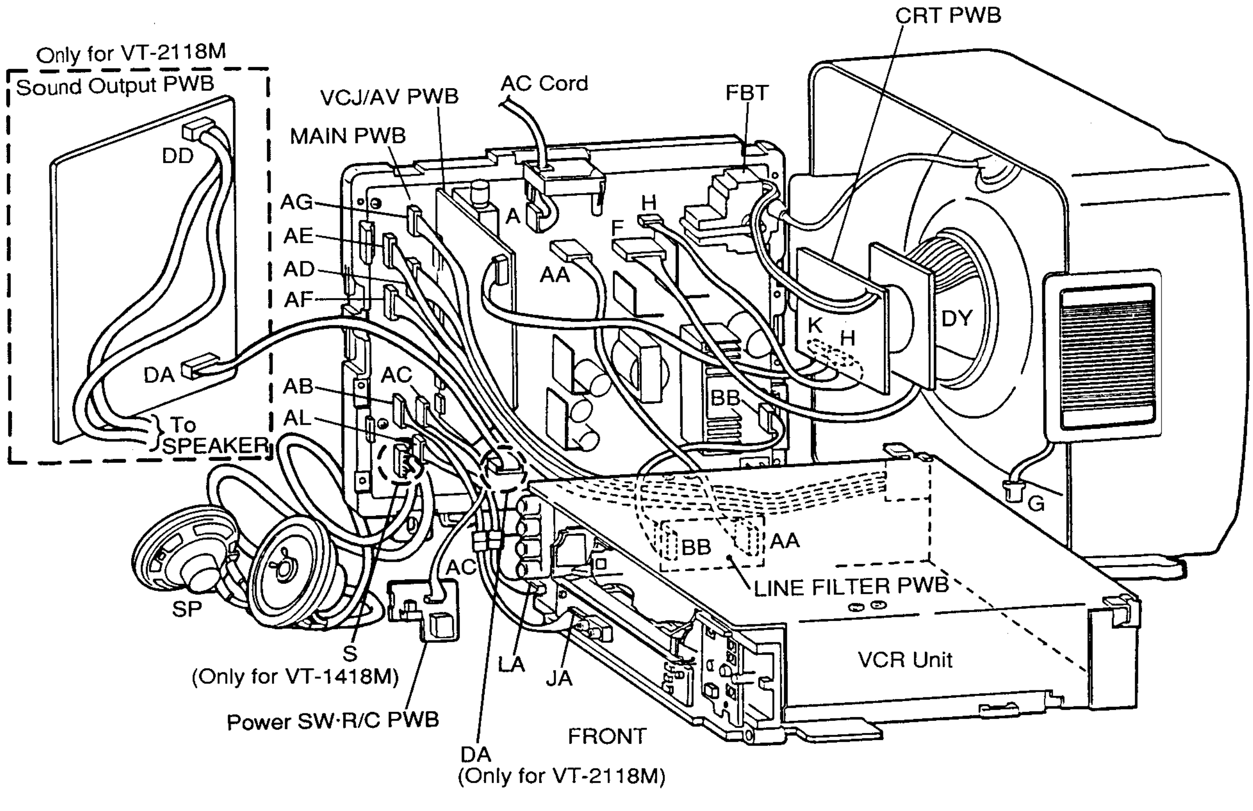
■ CONNECTIONS FOR SERVICING

Use the following extension cables in servicing the VCR unit taken out of the set.
Extension cables: Part codes QCNW-3778CEZZ, QCNW-3780CEZZ

- Connecting the extension cables
  (1) Between AB (TV unit) and JA (AV jack):
  Connect the cable QCNW-3778CEZZ between the AB plug and the AB socket.
  (2) Between AL (TV unit) and LA (LED unit):
  Connect the cable QCNW-3780CEZZ between the AL plug and the AL socket.


Extension cable: QCNW-3780CEZZ
AL
Extension cable: QCNW-3778CEZZ
AB
LA
JA

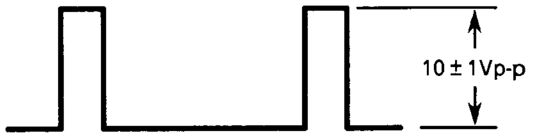
5. Remove the CRT PWB, degaussing coil connector G, and front power switch remote control PWB. Place the main PWB upright.
6. Reconnect the CRT PWB. Put the main PWB and the VCR unit together as shown below. Keep the front power switch remote control PWB, speakers and degaussing coil connector G off position.


Only for VT-2118M
Sound Output PWB
DD
DA
To SPEAKER
VCJ/AV PWB
MAIN PWB
AC Cord
FBT
CRT PWB
AG
AE
AD
AF
AB
AL
AC
A
H
F
AA
K
H
DY
BB
G
BB
AA
LINE FILTER PWB
VCR Unit
SP
AC
S
(Only for VT-1418M)
Power SW·R/C PWB
LA
JA
FRONT
DA
(Only for VT-2118M)

ADJUSTMENT OF THE TV ELECTRICAL CIRCUITRY

VIDEO/CHROMA ADJUSTMENT

1. CRT Cut-off Adjustment

Adjusting Conditions	Adjusting Procedures
Adjusting Point ☐ **R853: Red Bias control** ☐ **R859: Green Bias control** ☐ **R865: Blue Bias control** ☐ **T602: Screen control (a part of T602)** ☐ **R857: Green Drive control** ☐ **R863: Blue Drive control** ***Note:*** ***Prior to this adjustment, warm up the unit with the beam current of more than 600μA (VT-1418M) / 700μA (VT-2118M) for more than 30 minutes.*** 1. Receive "MONOSCOPE PATTERN" signal with pattern generator. 2. Set Red bias control at MIN (0/10) position. Set Green bias control at MIN (0/10) position. Set Blue bias control at MIN (0/10) position. Set Green drive control at CENTER (5/10) position. Set Blue drive control at CENTER (5/10) position. 3. Set the control at the "NORMAL" position that Contrast is MAX (60), Colour is CENTER (0) an Brightness is CENTER (0) using control, "Λ" and "V" keys. 4. Set the Screen control at MIN (0/10) position. 5. Turn on S1401 (Service switch) at the horizontal line position. 6. Connect the oscilloscope to TP852 (Red Cathode).	1. Adjust the Sub-Brightness control (R425) so that the blanking pulse on oscilloscope is 10 ± 1Vp-p.  2. Slowly turn the Screen control clockwise and stop it where the horizontal raster appears slightly, in one of the three colours. 3. Carefully adjust the Bias controls of the other two colours until the horizontal raster becomes white. 4. Turn the Screen control counterclockwise until the horizontal raster disappears, and stop it.

2. Sub-Contrast Adjustment

Adjusting Conditions	Adjusting Procedures
Adjusting Point ☐ **R421: Sub-Contrast control** ***Note:*** ***Prior to this adjustment, warm up the unit with the beam current of more than 600μA (VT-1418M) / 700μA (VT-2118M) for more than 30 minutes.*** 1. Receive "MONOSCOPE PATTERN" signal with pattern generator. 2. Set the Contrast and Brightness controls at MAX position. 3. Connect DC milliammeter to TP601⊖ and TP602⊕. (Full scale: 3 mA)	1. Adjust Sub-Contrast control so that the beam current becomes 0.8 mA (VT-1418M) / 1.1 mA (VT-2118M).

VIDEO/CHROMA ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedures

3. White Balance and Back Ground Adjustment

Adjusting Point

☐ **R857: Green Drive control**

☐ **R863: Blue Drive control**

☐ **R421: Sub-Contrast control**

Note:
Prior to this adjustment, warm up the unit with the beam current of more than 600μA (VT-1418M) / 700μA (VT-2118M) for more than 30 minutes.

1. Receive "MONOSCOPE PATTERN" signal with pattern generator.
2. Set the Contrast and Brightness controls at MAX position.
3. Connect beam ammeter to TP601 and TP602.
   (Full scale: 3 mA)

1. Adjust the Sub-Contrast control so that the beam current becomes 0.8 mA (VT-1418M) / 1.1 mA (VT-2118M) (rough adjustment).
2. Adjust the Green Drive control and Blue Drive control so that the colour temperature is at 10900K.
   - High beam:
     0.8 mA (VT-1418M)
     1.1 mA (VT-2118M)
3. Adjust the Contrast control and Brightness control so that the beam current is approx. 200μA, and check that the colour temperature is at 10900K. If the temperature is not at 10900K, go back to **"CRT CUT-OFF ADJUSTMENT"** and repeat the adjustment.
   (X = 0.275, Y = 0.287)

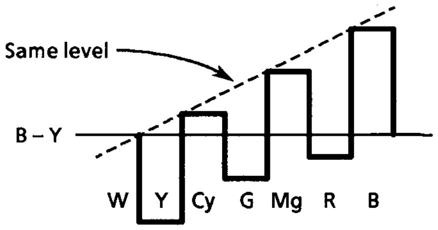
4. Sub-Tint Adjustment

Adjusting Point

☐ **R1882: Sub-Tint control**

1. Feed "NTSC COLOUR BAR" signal to video in jack with colour bar generator at the AV mode.
2. Connect oscilloscope to TP853 (B – Y).
3. Set the Tint control at the CENTER (0) position.
4. Set Service switch S1401 at the Video Cut position to cut off the Y-signal.

1. Adjust Colour control key to obtain the output of approx. 3Vp-p.
2. Adjust Sub-Tint control (R1882) so that the output waveform is as shown in figure below.
3. Return S1401 to CENTER (normal position).



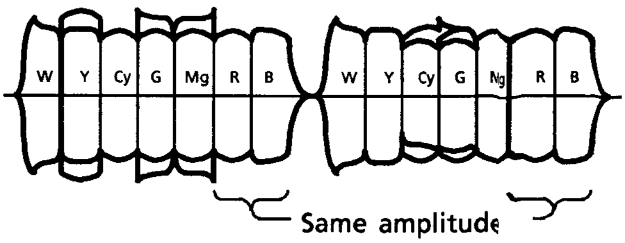
5. Bell Filter Adjustment

Adjusting Point

☐ **T1802: Bell Filter**

1. Receive "SECAM COLOUR BAR" signal with colour bar generator.
2. Connect oscilloscope to TP1801 with the following settings.
   - Range: 0.05V / div. AC
   - Sweep Time: 20μsec / div.
   - Probe: 1/10 (30pF, 10MΩ or more)

1. Adjust the Bell Filter (T1802) so that the red (R) output and blue (B) output will have the same amplitude.



VIDEO/CHROMA ADJUSTMENT (Continued)

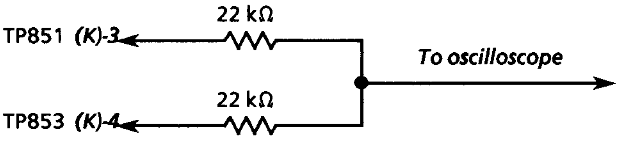
Adjusting Conditions	Adjusting Procedures

6. PAL Chroma Adjustment

Adjusting Point
☐ **R1806: 1H Delay Amp. control**
☐ **T1801: 1H Delay Phase control**

Note: Before this adjustment, the PIF/AFT/AGC adjustment must have been completed.

1. Receive "PAL COLOUR BAR" signal with pattern generator.
2. Connect the following resistance matrix to pins 3 and 4 of the connector (K), to which an oscilloscope is connected.



Resistance Matrix

3. Set the Service switch S1401 at the Video Cut position to cut off the Y-signal.

1. Adjust the Colour control key so that the output waveform of colour difference signal becomes 1.5 Vp-p.
2. Adjust R1806 and T1801 so that the output waveform shown in Fig. ***a*** is corrected to that shown in Fig. ***b***.
3. Return S1401 to CENTER (normal position).

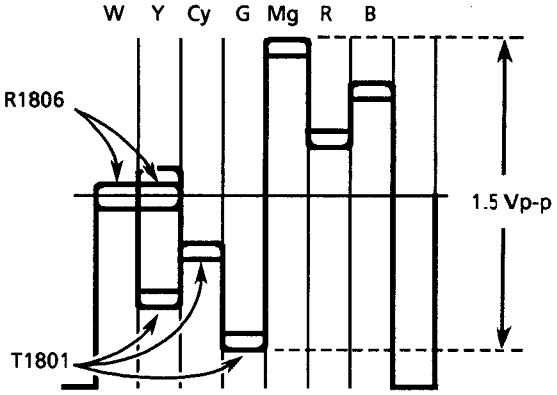


Figure a. Waveform before the adjustment

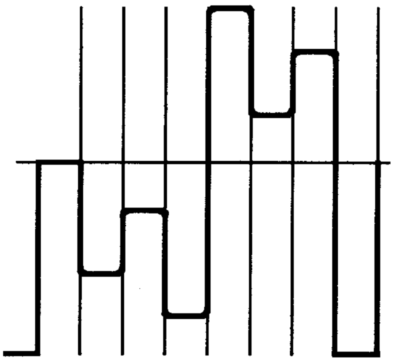


Figure b. Waveform after the adjustment

7. SECAM Killer Adjustment

Adjusting Point
☐ **T1803: SECAM Killer control**

1. Receive "SECAM COLOUR BAR" signal with colour bar generator.
2. Connect oscilloscope to TP1802 with the following settings.
   - Renge: 1V / div. DC
     (Adjust vertical position properly.)
   - Sweep Time: 20μsec / div.

1. Adjust T1803 to obtain maximum DC voltage at TP1802 (approx. 9.5V).

VIDEO/CHROMA ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedures

8. R -Y / B - Y Discriminator Adjustment

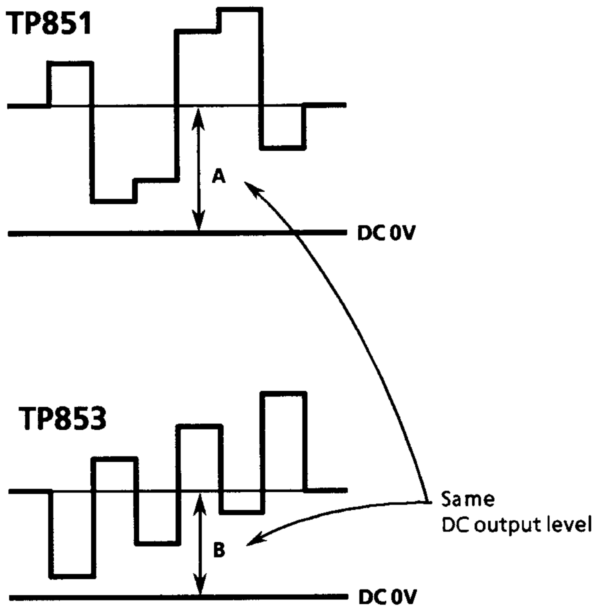
Adjusting Point

☐ **T1804: R - Y Discriminator**

☐ **T1805: B - Y Discriminator**

1. Receive "SECAM COLOUR BAR" signal with colour bar generator.
2. Connect the oscilloscope (with two channecls) to TP851 (R - Y) and the TP853 (B - Y), both located on the CRT Socket Unit of the set.
   - Renge: 1V / div. DC
   - Sweep Time: 20μsec / div.
3. Set service switch S1401 at the Video Cut position to cut-off the Y-signal.
4. Set both the Contrast and Brightness controls to their maximum postions.

1. Adjust T1804 (R - Y) and T1805 (B - Y) so that DC output level with colour control set at minimum will be the same as that with colour control set at 100% of saturation. (A = B)
   * Connect capacitor (0.001 μF) to TP851 and TP853, thus to prevent noise interference.
2. Set service switch S1401 to the canter position.

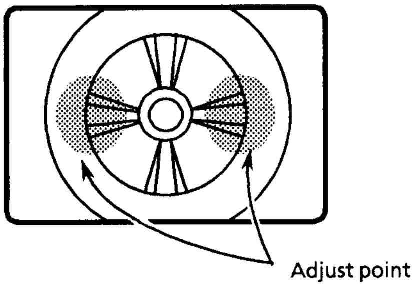


DEFLECTION LOOP ADJUSTMENT

Adjusting Conditions	Adjusting Procedures

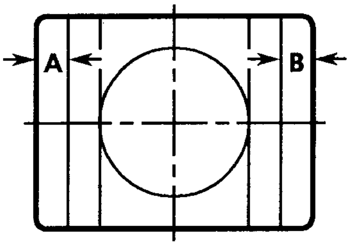
1. Focus Adjustment

● **During the adjustment, keep the unit facing the east.**

Adjusting Point ☐ **T602: Focus control (a part of T602)** 1. Receive "MONOSCOPE PATTERN" signal. 2 Set the Brightness and Contrast controls at NORMAL position.	1. Adjust Focus control (a part of T602) to have best focus at the central area of CRT. 

2. Horizontal Center Adjustment

● **During the adjustment, keep the unit facing the east.**

Adjusting Point ☐ **R1602: Horizontal Center control** ***Note: This adjustment should be performed after the purity and convergence adjustments.*** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust R1602 so that the horizontal center of picture is at the position which gives the relation of A = B. 

3. Vertical Linearity Adjustment

● **During the adjustment, keep the unit facing the east.**

Adjusting Point ☐ **R526: Vertical Linearity control** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust R526 so that the vertical linearity of picture is at best point.

4. Vertical Size Adjustment

● **During the adjustment, keep the unit facing the east.**

Adjusting Point ☐ **R503: Vertical Size control** 1. Receive "MONOSCOPE PATTERN" signal. 2. Set the Brightness and Contrast controls at MAX position.	1. Adjust R503 so that the vertical size of picture is at the same size as horizontal size. ● V-SIZE 8% TYP 12% MAX

DEFLECTION LOOP ADJUSTMENT (Continued)

5. Vertical Centering Adjustment

• During the adjustment, keep the unit facing the east.

Adjusting Conditions	Adjusting Procedures
Adjusting Point ☐ **S501: Vertical Center Adjust switch** ***Note: This adjustment should be performed after the purity and convergence adjustments.*** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust S501 so that the picture's vertical center is idential to CRT geometrical vertical center.

ADJUSTMENT OF THE IF CIRCUIT

Adjustment of the RF AGC

Measuring instrument	Oscilloscope Signal generator
Mode	EE
Input signal	Colour bar signal
Test point	TP201 ③ (GND) TP201 ① (Video Output)
Adjusting point	VR001 (AGC control)

1. Receive the colour bar signal (input field strength: 80 dBμ).
2. Observe the video output terminal waveform on the oscilloscope. Adjust VR001 (AGC control) in the IF pack until the noise disappears from the oscilloscope screen and the waveform nearly comes into sync.

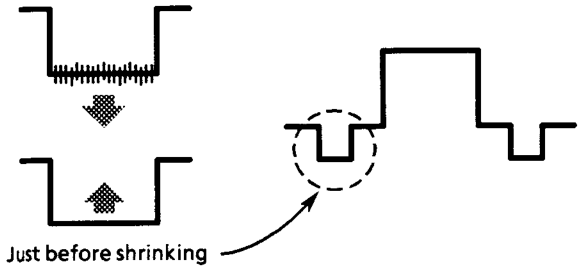


Figure 1.

Adjustment of the AFT

Measuring instrument	Oscilloscope Signal generator
Mode	EE
Input signal	PIF frequency uniwave Colour bar signal (70 dBμ)
Test point	TP201 ③ (GND) TP201 ① (Video Output)
Adjusting point	T002 (AFT coil)
Specification	———

1. Receive the colour bar signal (input field strength: 70 dBμ).
2. Using the signal generator, feed the PIF frequency (38.9 MHz) signal (sinewave) to the tuner IF output terminal.
3. Set the tuning switch to the VHF or UHF position. Keep the tuning button (+) or (−) depressed until the beating on the oscilloscope screen be minimum.
4. Set the tuning switch on the normal position. Adjust T002 (AFT coil) so that beating on the oscilloscope screen be minimum.

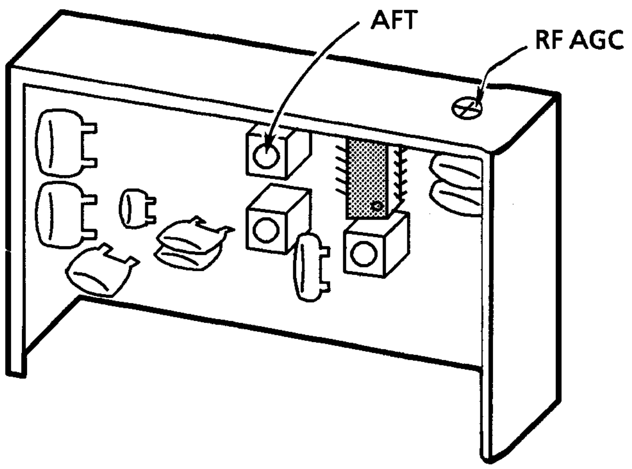
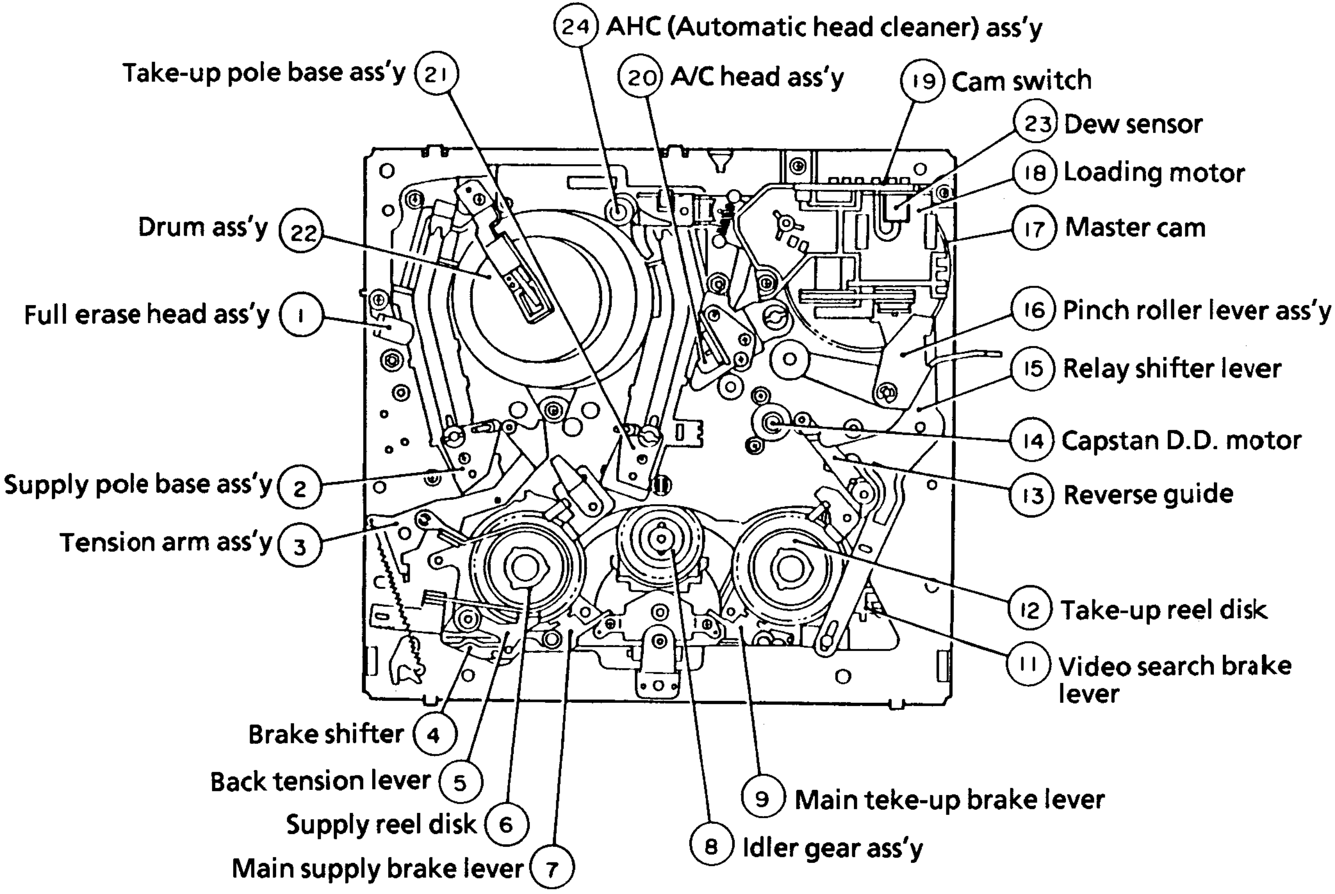


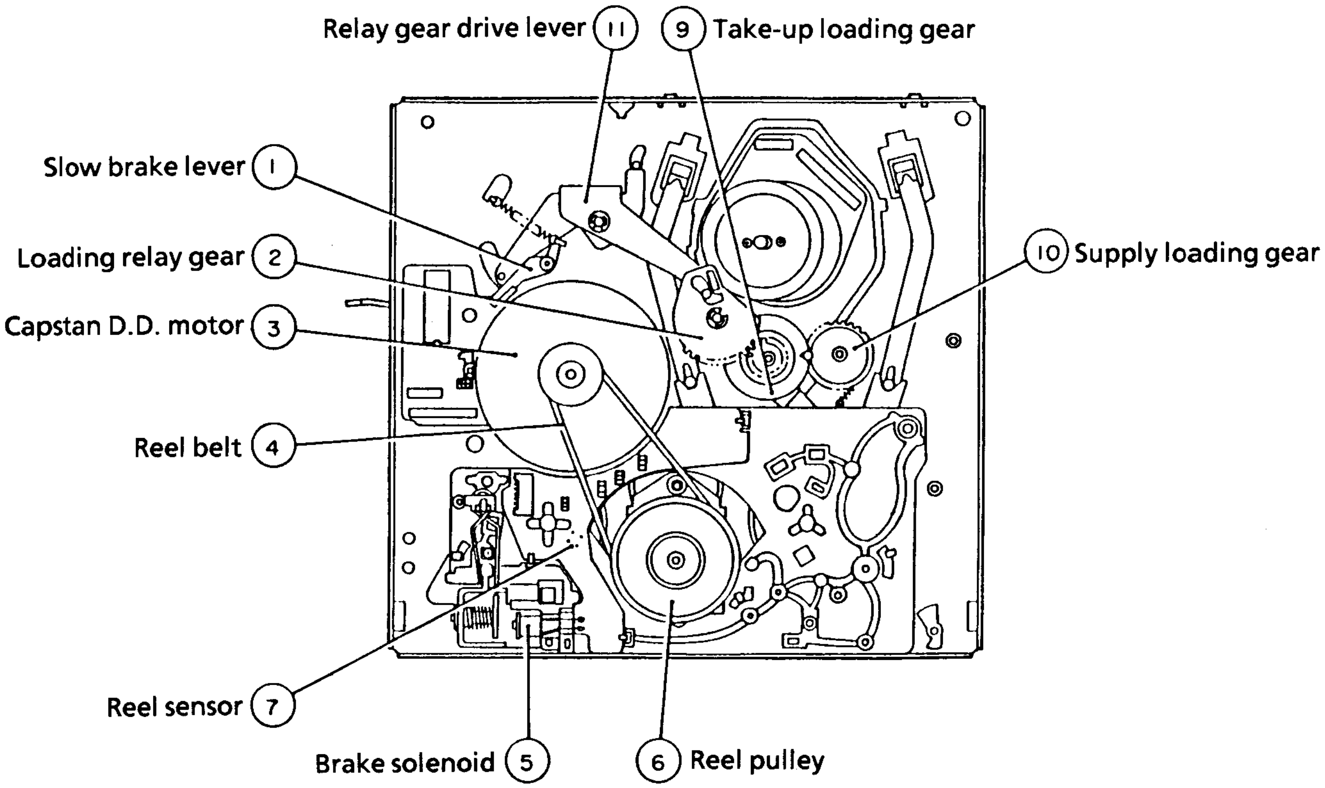
Figure 2. IF Pack

FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)


㉔ AHC (Automatic head cleaner) ass'y
Take-up pole base ass'y ㉑
⑳ A/C head ass'y
⑲ Cam switch
㉓ Dew sensor
⑱ Loading motor
⑰ Master cam
Drum ass'y ㉒
Full erase head ass'y ①
⑯ Pinch roller lever ass'y
⑮ Relay shifter lever
⑭ Capstan D.D. motor
Supply pole base ass'y ②
⑬ Reverse guide
Tension arm ass'y ③
⑫ Take-up reel disk
⑪ Video search brake lever
Brake shifter ④
Back tension lever ⑤
⑨ Main teke-up brake lever
Supply reel disk ⑥
⑧ Idler gear ass'y
Main supply brake lever ⑦

No.	Function	No.	Function
1.	Full erase head ass'y Erase the whole records on the tape in the recording mode.	13.	Reverse guide Pulls out the tape in the video search rewind mode, and controls the tape drive train height with the upper and lower guides.
3.	Tension arm ass'y Detects the tension of tape while running, and brakes the supply reel disk via the tension band.	15.	Relay shifter lever Transmits the operation of the master cam to the brake shifter, and operates the reverse guide.
4.	Brake shifter Set the position of brake or the like in accordance with the modes such as stop and playback.	16.	Pinch roller lever ass'y Press-fits the tape to the capstan during tape running. The right protrusion switches the clutch of the cassette housing control assembly in "tape eject", and makes the mechanism eject the tape.
5.	Back tension lever Brakes the supply reel disk to a certain degree to prevent tape slackening during "half-loading", "loading" and "shifting from playback to video search rewind".	17.	Master cam Turns clockwise during loading, and counterclockwise during unloading, and moves the shifter or the like in accordance with each mode.
7.	Main supply brake lever Brakes the supply reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	18.	Loading motor A motive power which drives the mechanism. It transmits the power to the master cam and cassette housing control assembly via the belt.
9.	Main take-up brake lever Brakes the take-up reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	19.	Cam switch Rotates synchronously with the master cam, and detects the position of each mode by means of the internal switch.
11.	Video search brake lever It is in contact with the take-up reel disk normally, and brakes it to a certain degree. It applies larger brake in the video search rewind mode.	23.	Dew sensor An element which detects condensation inside the unit. This element is activated, when it senses condensation, to interrupt the mechanism.

FUNCTION OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)


Relay gear drive lever ⑪
⑨ Take-up loading gear
Slow brake lever ①
Loading relay gear ②
Capstan D.D. motor ③
⑩ Supply loading gear
Reel belt ④
Reel sensor ⑦
Brake solenoid ⑤
⑥ Reel pulley

No.	Function	No.	Function
1.	Slow brake lever Gets in contact with the capstan D.D. motor linking to the master cam in the slow still mode, and brakes it to a certain degree.	7.	Reel sensor An element which sheds the light onto the reflection plate affixed to the bottom side of the reel disk, and detects the rotation of the reel disk through receiving the reflected light.
3.	Capstan D.D. motor A motive power which runs the tape. It transmits the power via the reel belt.	9.	Take-up loading gear Shifts the take-up pole base and guide roller via the loading relay gear, and applies the tape around the durm assembly, as well as transmits the power to the supply loading gear.
4.	Reel belt Transmits the power to run the tape to the reel pulley.		
5.	Brake solenoid Adsorbs and holds the brake shifter in the fast forward and rewind modes, and releases it in the stop mode.	10.	Supply loading gear Shifts the supply pole base and guide roller via the take-up loading gear, and applies the tape around the drum assembly.
6.	Reel pulley Transmits the power of the capstan D.D. motor to the reel disk via the reel idler.	11.	Relay gear drive lever Transmits the movement of the master cam to the take-up loading gear via the loading relay gear.

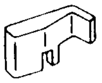
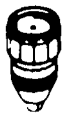
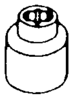
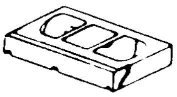
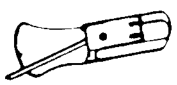
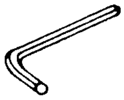
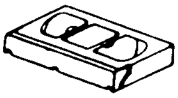
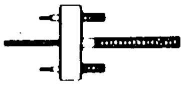
ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS

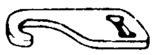
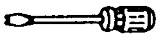
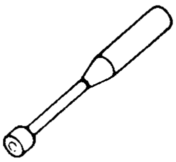
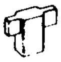
Here we will describe a relatively simple service work in the field, not referring to the more complicated repairs which would require the use of special equipment and tools (drum assembly replacement, for example).

We are sure that the easy-to-handle tools listed below would be more than handy for periodical maintenance to keep the machine in its original working condition.

TOOLS NECESSARY FOR ADJUSTING THE MECHANICAL UNITS

The following tools are required for proper service and satisfactory repair.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1	Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height
2	Master Plane Jig	JiGMP0001	BY		
3	A/C Head Tilt Adjusting Jig	JiGACH-F18	BU		This Jig is used for setting the A/C head tilt.
4	Torque Gauge (90g)	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
	Torque Gauge (1.2 kg)	JiGTG1200	CN		
5	Gauge Head	JiGTH0006	AW		
6	Cassette Torque Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up for measuring tape back tension.
7	Tension Gauge (300g)	JiGSG0300	BF		There are two gauges used for the tension measurements, 300g and 2.0 kg.
	Tension Gauge (2.0kg)	JiGSG2000	BS		
8	Hex Wrench (0.9mm)	JiGHW0009	AE		These Jigs are used for loosening or tightening special hexagon type screws.
	Hex Wrench (1.2mm)	JiGHW0012	AE		
	Hex Wrench (1.5mm)	JiGHW0015	AE		
9	Alignment Tape (PAL)	VROCPSV	CD		This tape is especially used for electrical fine adjustment.
	Alignment Tape (NTSC)	VROATSV VRONBZGS	CD		
10	Drum Replacing Jig	JiGDT-0001	BG		This is used for replacement of the VCR's upper drum.

No.	Jig Item	Part No.	Code	Configuration	Remarks
11	Tension Gauge Adapter	JiGADP003	BK		This Jig is used with the tension gauge. Rotary transformer clearance adjusting jig.
12	Special Bladed Screwdriver	JiGDRiVERH-4	AP		This screwdriver is used for adjusting the guide roller height.
13	Tension Band and Plate Adjusting Jig	JiGDRiVER-6	BM		This Jig is used for adjusting the tension band and tension plate.
14	Torque Driver	JiGTD1200	CB		This is used to screw down resin-made parts: the specified torque is 5 kg.
15	Box Driver	JiGDRiVER110-7	AS		This Jig is used for height adjustment of the A/C head and X-position.
		JiGDRiVER110-4	AV		This Jig is used for height adjustment of the retaining guide.
16	Reverse Guide Height Adjusting Jig	JiGRVGH-F18	BU		This Jig is used for height adjustment of the reverse guide.

MECHANICAL PARTS REQUIRING PERIODICAL INSPECTION

Use the following table as a guide to maintain the mechanical parts in good operating condition.

Maintained Parts	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	Possible symptom encountered	Remarks
Guide roller ass'y	□	□	□	○	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Supply impedance roller	□	□	□	○		
Supply impedance roller (inner hole and shaft)		□		□		Clean with pure high quality isopropyl alcohol.
Supply impedance roller flange	□	□	□	□		Clean tape contact part with the specified cleaning liquid.
Retaining guide	□	□	□	□		
Slant pole	□	□	□	○		
Video head (upper drum ass'y)	□	○ □	□	○ □	Poor S/N ratio, no color	Clean tape contact area with the specified cleaning liquid.
Full-erase head	□	□	□	○	Poor colour, beating	
A/C head	□	□	□	○	Sound too small or distorted	
Lower drum ass'y	□	□	□	○	Poor flatness of the envelope with alignment tape	
Capstan D.D. Motor	□	□	□	○	No tape running, uneven color	
Pinch roller	□	□	□	○	No tape running, tape slack	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		□		○	No tape running, tape slack, no fast forward/rewind motion	
Loading belt		□		○	Cassette not loaded or unloaded	
Cassette loading belt		□		○		
Tension band ass'y				○	Lateral image swing	
Loading Motor				○	Cassette not loaded or unloaded	
AHC (Automatic Head Cleaner)		○		○		Replace the roller of the cleaner when it wears down. Just change the AHC roller assembly for new one.
Reel block*					See the chart below.	
*** See the table below for servicing the reel block parts.**						
Supply/Take-up reel disks		□ △		△ ○	No tape running, tape slack	Clean with pure high quality isopropyl alcohol.
Video search brake lever				○		
Idler gear ass'y				○	No tape running	
Reel Pulley		□ △		□ ○		
Main supply/take-up brake levers				○	Tape slack	

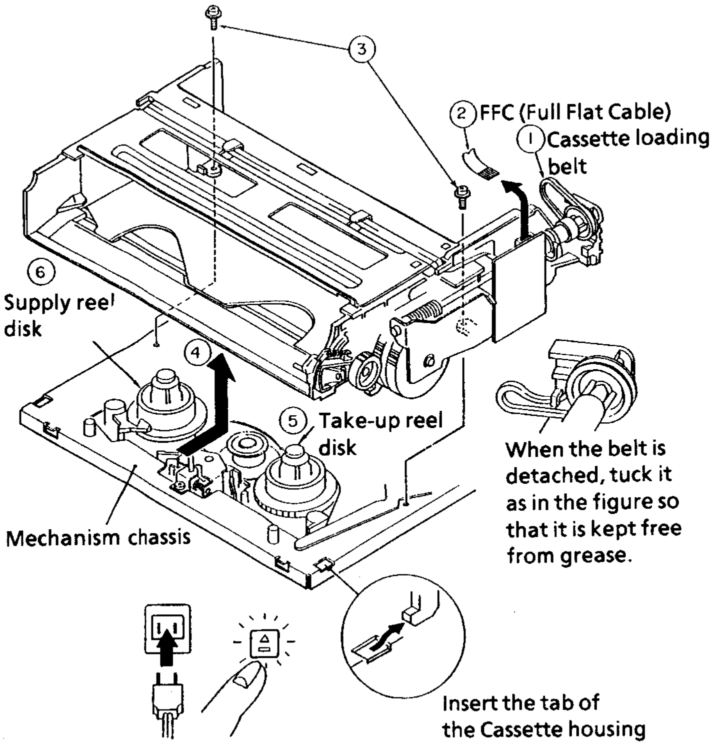
NOTE:
○: Part replacement.
□: Cleaning (For cleaning, use a lint-free cloth dampened with pure isopropyl alcohol).
△: Oil refilling (The indicated point should be lubricated with high quality spindle oil every 1000 hrs).

If the reading is out of the specified value, clean or replace the part.

REMOVAL AND REASSEMBLY OF CASSETTE HOUSING CONTROL ASSEMBLY

- **Removal**

1. Set the cassette ejected condition in the cassette eject mode.
2. Unplug the recorder from the main source.
3. Follow the procedures below in the specified order.
   a) Remove the cassette loading belt ①.
   b) Disconnect the FFC (Full Flat Cable) ②.
   c) Remove the cassette housing installation screws ③.
   d) Slide and pull out the cassette housing control assembly ④ upward.



When the belt is detached, tuck it as in the figure so that it is kept free from grease.

Insert the tab of the Cassette housing control assembly to the mechanism chassis.

Figure1-1

- **Reassembly**

1. Before installation of the cassette housing control assembly, place the unit in the stop mode with the power on, then unplug the power cord. (The main body is placed in the eject mode.)
2. Follow the procedures for removal in the reverse order.

Notes:

1. Be sure to unplug the power cord in removal and reassembly.
2. Keep the cassette loading belt free from grease. In case of its adhesion, clean the belt.
3. In using a magnet screw driver, be sure to keep it away from the A/C head, FE (Full Erase) head, or the drum.
4. In removal and reassembly, take care not to hit the cassette housing control assembly or tools against the guide pin, drum, or the like thereabout.
5. Place the unit in the eject mode in removal or reassembly of the cassette housing control assembly.
6. Load the cassette once onto the cassette housing control assembly after reassembly. (If the cassette housing control assembly normally operates after this, the phases of mechanism and the cassette controller are accurately adjusted after ejection.)

MECHANICAL OPERATION CHECK WITHOUT CASSETTE

When power is on, the general operations of the mechanism can be checked without a cassette. Note the following points.

1. Check video search rewind and rewind, rotating the take-up reel disk ⑤ by hand (in either normal or reverse direction). If it is not rotated, the reel sensor works to shift the mechanism to the eject mode.
2. When the stop button is pressed, the mechanism does not stop at a normal stop position. It shifts to the eject mode and stops.
3. When the stop button is pressed in the playback, video search rewind, and video search forward modes, the supply reel disk ⑥ keeps on rotating for several seconds for elimination of tape slack in the course of shifting to the eject mode. In such a case, rotate the take-up reel disk ⑤ somewhat by hand, and the supply reel disk ⑥ stops, which can reduce the working time.

REPLACEMENT OF WORM WHEEL ASSEMBLY

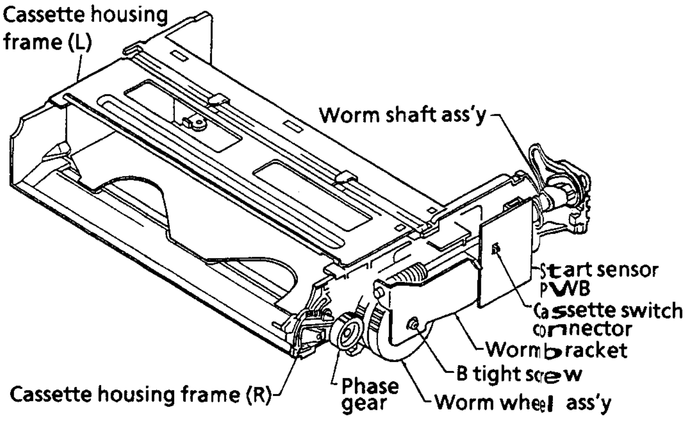


Figure 1-2

- **Removal**

1. Unsolder the cassette switch connectors (No. 16, 17) from the start sensor PWB.

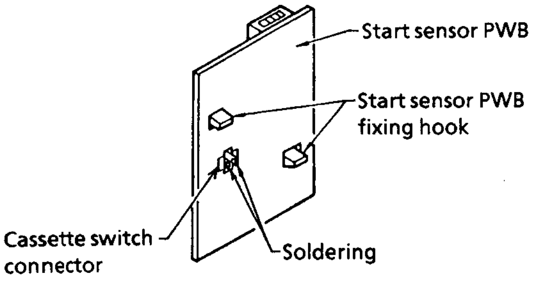

Start sensor PWB
Start sensor PWB fixing hook
Cassette switch connector
Soldering

Figure 1-3.

2. Lift the start sensor PWB pressing the two start sensor PWB fixing hooks inward.

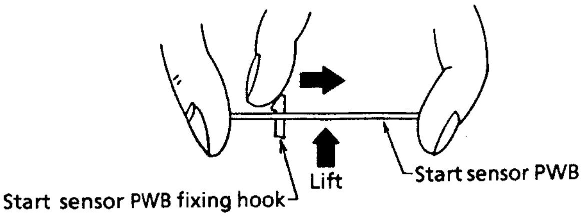

Lift
Start sensor PWB
Start sensor PWB fixing hook

Figure 1-4.

3. Unscrew one B tight screw to detach the worm bracket.
   Note:
   The worm shaft bearing can easily come out of position. So be careful not to lose it.

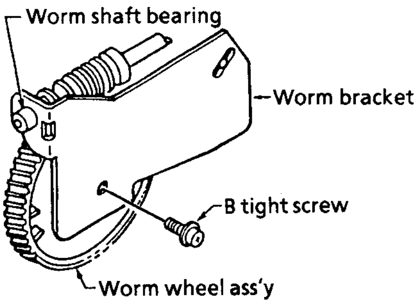

Worm shaft bearing
Worm bracket
B tight screw
Worm wheel ass'y

Figure 1-5.

4. Remove the worm shaft assembly, pulley, and cassette loading belt all from the cassette housing frame (R).

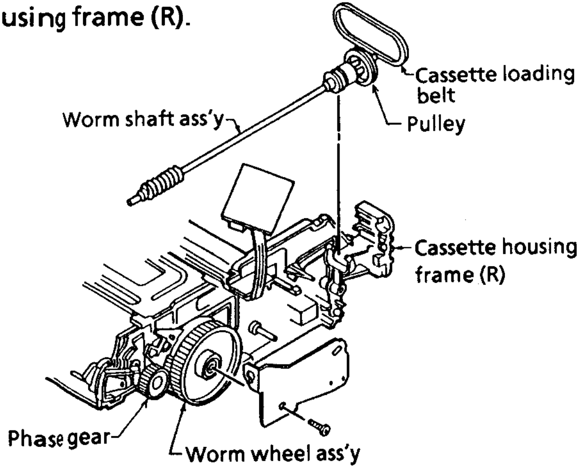

Cassette loading belt
Worm shaft ass'y
Pulley
Cassette housing frame (R)
Phase gear
Worm wheel ass'y

Figure 1-6.

5. Place the slider pin just above the worm wheel assembly (Figure 1-7). (The retainer of the slider is locked at two positions. So unlock it as in the Figure 1-8.)
6. Pull out the worm wheel assembly toward you pressing the switch lever upward. (Figure 1-7)

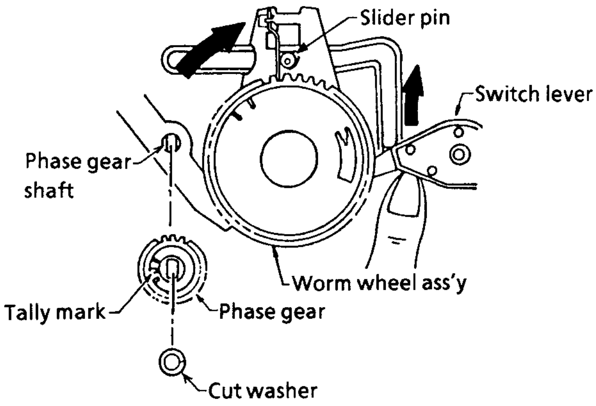

Slider pin
Switch lever
Phase gear shaft
Worm wheel ass'y
Tally mark
Phase gear
Cut washer

Figure 1-7.

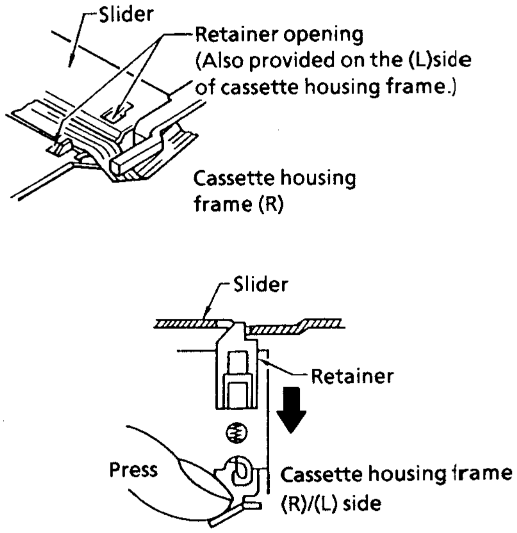
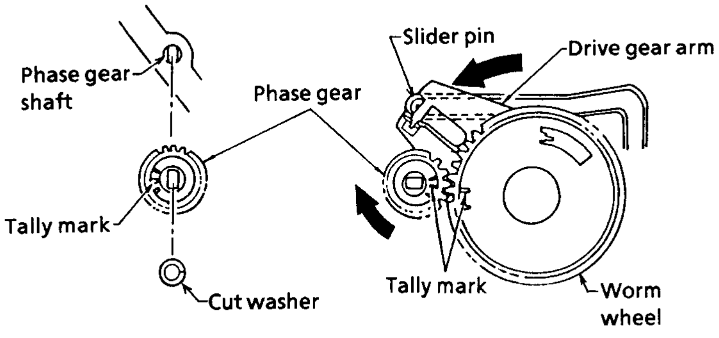

Slider
Retainer opening
(Also provided on the (L)side of cassette housing frame.)
Cassette housing frame (R)
Slider
Retainer
Press
Cassette housing frame (R)/(L) side

Figure 1-8.

- **Reassembly**

1. Turn the phase gear clockwise until the slider comes to a halt in the cassette insertion direction. (See the Figure 1-9.)
2. Insert the set up worm wheel gear assembly into the cassette housing frame (R), matching the mark on the phase gear with the mark on the worm wheel gear. Detach the cut washer on the phase gear assembly and the phase gear for easier installation of worm wheel assembly.
   Note:
   Make sure that the slider pin is in the groove of the drive gear arm.


Phase gear shaft
Phase gear
Tally mark
Cut washer
Slider pin
Drive gear arm
Tally mark
Worm wheel

(a) (b)

Figure 1-9.

3. Install the pulley and the cassette loading belt on the worm shaft assembly. Couple the clutch to the clutch lever. And mount them together in the cassette housing frame (R).
   Note:
   Keep in mind that the clutch switching lever should be in the correct position. The mechanism might malfunction if the lever is slightly out of position. (See page 23.)

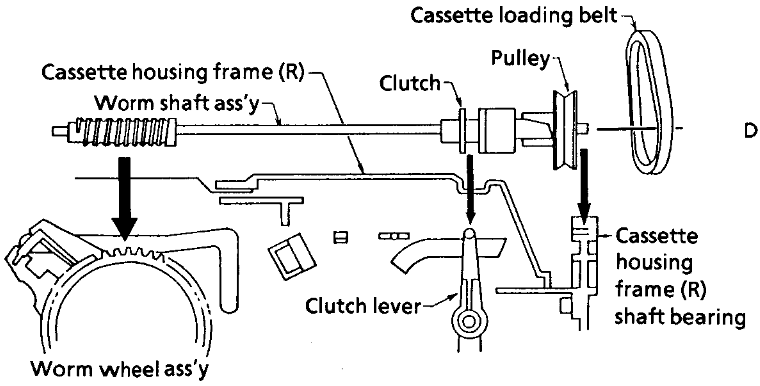

Cassette loading belt
Pulley
Cassette housing frame (R)
Clutch
Worm shaft ass'y
Cassette housing frame (R) shaft bearing
Clutch lever
Worm wheel ass'y

Figure 1-10.

4. Attach the worm bracket to the worm shaft assembly. Place them onto the boss on the cassette housing frame (R).
   Note:
   Insert ① before screwing into ② and ③.

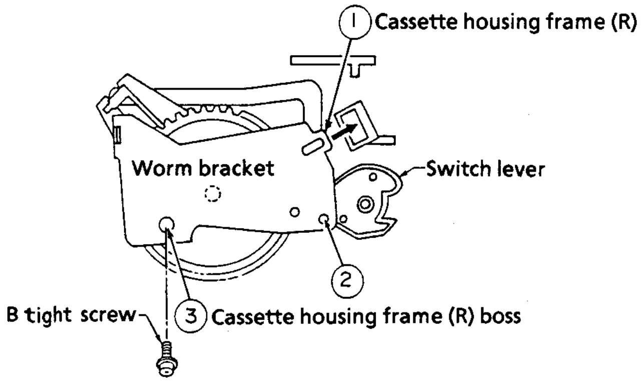
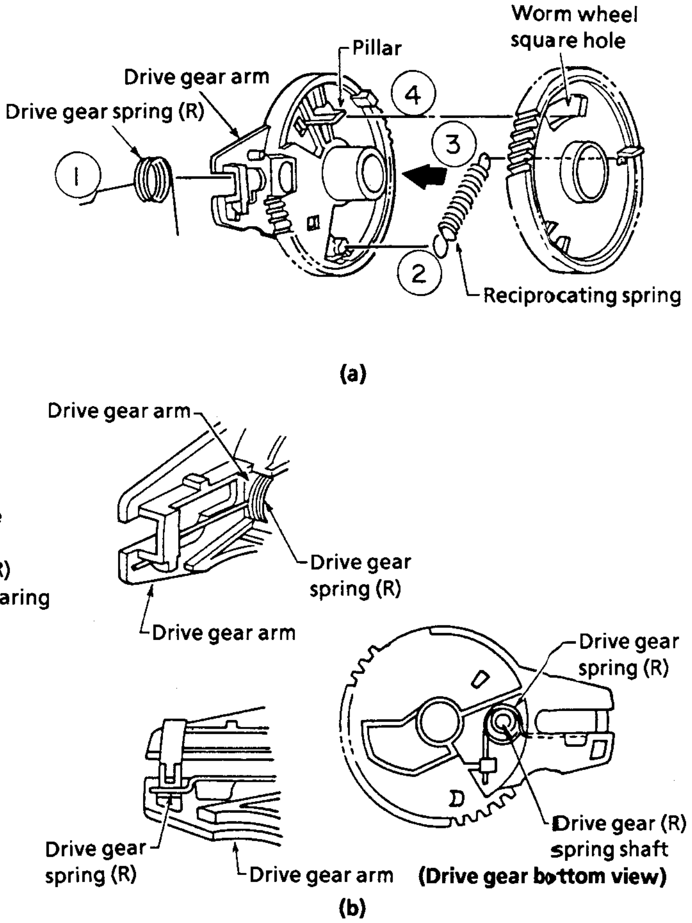

① Cassette housing frame (R)
Worm bracket
Switch lever
②
B tight screw
③ Cassette housing frame (R) boss

Figure 1-11.

5. Tighten one B tight screw.
   Note:
   Do not overtighten the B tight screw (no more than 5.0 ± 0.5 kg·cm), because the lower threads of the screw hole at the resin-made boss can be broken.
6. Place the start sensor PWB on the cassette housing frame (R).
   Note:
   Check that the switch connectors (No. 16, 17) are in the cassette switch mounting hole.
7. Finally resolder the cassette switch connector to the start sensor PWB.

REASSEMBLY OF DRIVE GEAR


Worm wheel square hole
Pillar
Drive gear arm
④
Drive gear spring (R)
③
①
②
Reciprocating spring
(a)
Drive gear arm
Drive gear spring (R)
Drive gear arm
Drive gear spring (R)
Drive gear spring (R)
Drive gear arm
Drive gear (R) spring shaft
(Drive gear bottom view)

(b)

Figure 1-12.

1. Pass the tip of the drive gear spring (R) ① through the square hole of the drive gear (R) to hook the spring in position.
2. Hook one end ② of the reciprocating spring to the catch of the drive gear (R).
3. Hook the other end ③ of the reciprocating spring to the catch of the worm wheel.
4. Insert the pillar ④ of the drive gear (R) into the square hole of the worm wheel. Turn the worm wheel somewhat counterclockwise for insertion of the worm wheel to the drive gear (R), because the reciprocating spring is at work.

REPLACEMENT OF CASSETTE LOADING BELT

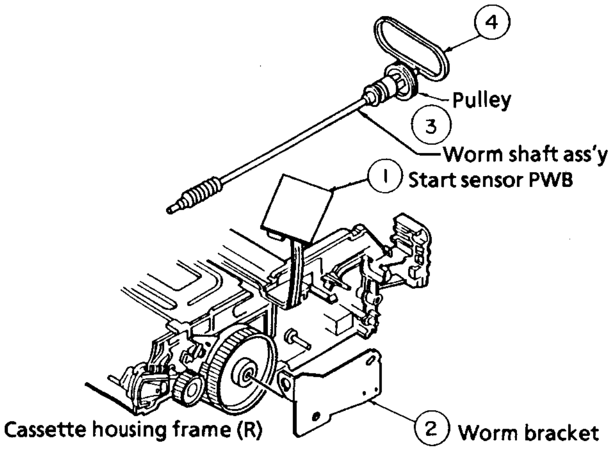

④
Pulley
③
Worm shaft ass'y
① Start sensor PWB
Cassette housing frame (R)
② Worm bracket

Figure 1-13.

1. Remove the start sensor PWB ① and worm bracket ② from the cassette housing frame (R).
2. Remove the worm shaft assembly ③.
3. Replace the cassette loading belt ④ with a new one.

Notes:

1. Do not overtighten the B tight screw which holds the worm bracket in position. The specified torque is 5.0 ± 0.5 kg·cm.
2. Make sure that the cassette loading belt is free from grease. If stained with grease, clean the belt with the cleaning liquid.
3. Perform checking of the clutch switch lever for proper action.

CHECKING THE CLUTCH SWITCH LEVER

- **Checking**

  Place the mechanism in the cassette eject mode when removing and attaching the cassette housing from and to the mechanism chassis.

  Make sure enough that each part in the cassette housing such as the clutch switch lever is in position. If not, it causes malfunction.

  Note:

  Figure 1-14 shows the position of each part in the cassette eject mode.

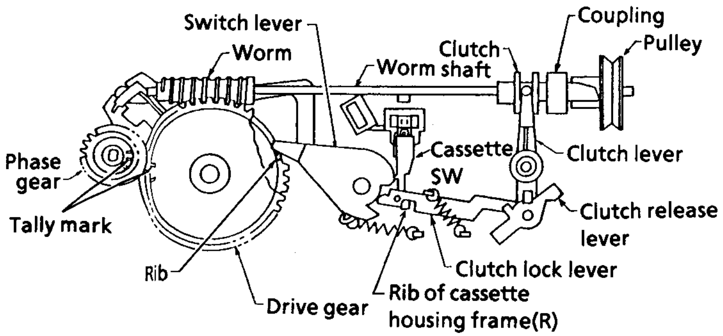
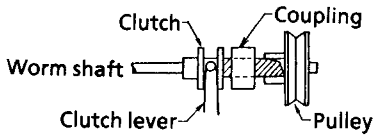

Switch lever
Worm
Clutch
Worm shaft
Coupling
Pulley
Phase gear
Tally mark
Cassette SW
Clutch lever
Clutch release lever
Rib
Clutch lock lever
Rib of cassette housing frame(R)
Drive gear

Figure 1-14.

1. First make sure that the tip of the switch lever is held at the rib of the drive gear (R).
2. Check that the rib of the cassette housing frame (R) and the concavity of the clutch lock lever are engaged.
3. Finally be sure that the relationship between the clutch lever and the clutch, as well as between the clutch and the pulley, are correct as in the Figure 1-15.


Clutch
Coupling
Worm shaft
Clutch lever
Pulley

Check that the clutch is engaged with the pulley through the coupling.

Figure 1-15.

- **Resetting**

  Take the following steps to reset the clutch if it is unlocked or if the switch lever and the clutch lock lever are unlocked.

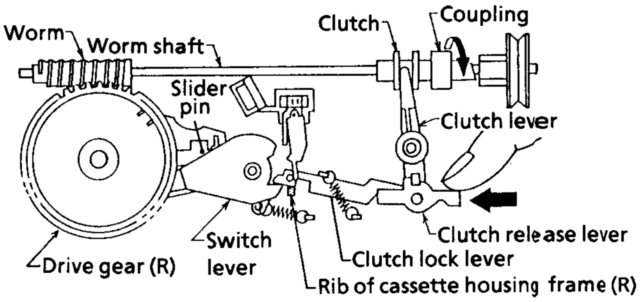

Worm
Worm shaft
Clutch
Coupling
Slider pin
Clutch lever
Switch lever
Drive gear (R)
Clutch release lever
Clutch lock lever
Rib of cassette housing frame (R)

Figure 1-16.

1. Shift the slider by turning the coupling in the arrow direction (clockwise) until the slider pin is at the bottom of the slider groove as shown in the Figure 1-16. (The loading mode)

   Note:

   Note that the slider is equipped with a lock mechanism. Unlock the locks on cassette housing frames (L) and (R) side before shifting the slider.
2. When the position is set as shown in the Figure 4-16, push the clutch release lever in the direction of the arrow by hand until the clutch lock lever becomes tightly locked by the rib of the cassette housing frame (R).
3. Then turn the coupling counterclockwise until the slider reaches the cassette insertion opening and the reciprocating spring is activated.

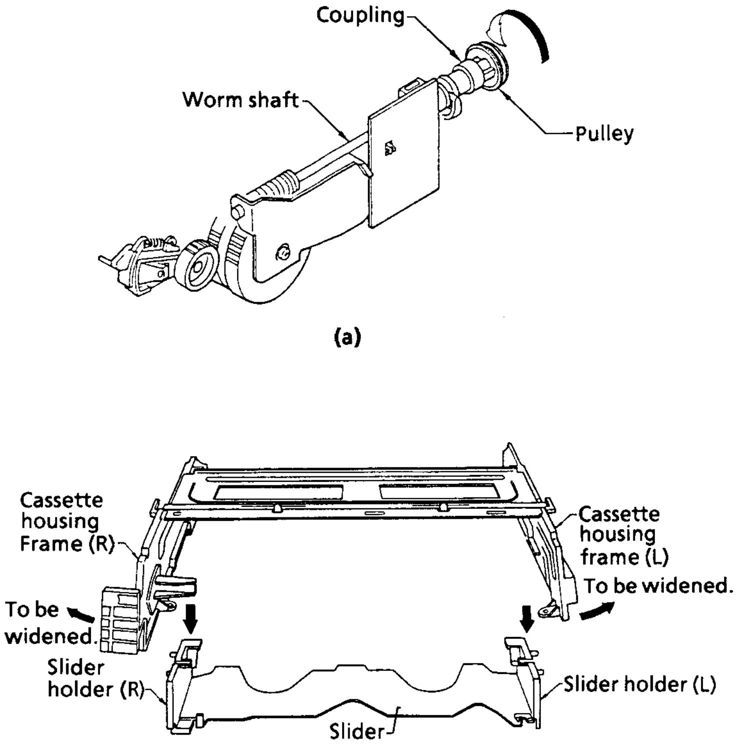
   Note:

   There is no need to unlock the slider when shifting the slider to the cassette insertion opening. Just keep shifting the slider.

REPLACEMENT OF LOCK RELEASE LEVER

- **Removal**

1. Place the slider in the cassette down position. (Turn the coupling on the worm shaft clockwise until the slider is in the cassette down position.)
   Note:
   Before shifting, unlock the slider.
2. Slightly widen the cassette housing frames (R) and (L) to unhook the slider holders (R) and (L) of the slider assembly off the grooves of the cassette housing frames.


Coupling
Worm shaft
Pulley
Cassette housing Frame (R)
To be widened.
Slider holder (R)
Cassette housing frame (L)
To be widened.
Slider holder (L)
Slider

(a)

(b)

Figure 1-17.

3. Lift the slider holder (R) upward about 2mm off the slider by pressing two catches with a thin tip screw driver. Take care not to damage the catches.

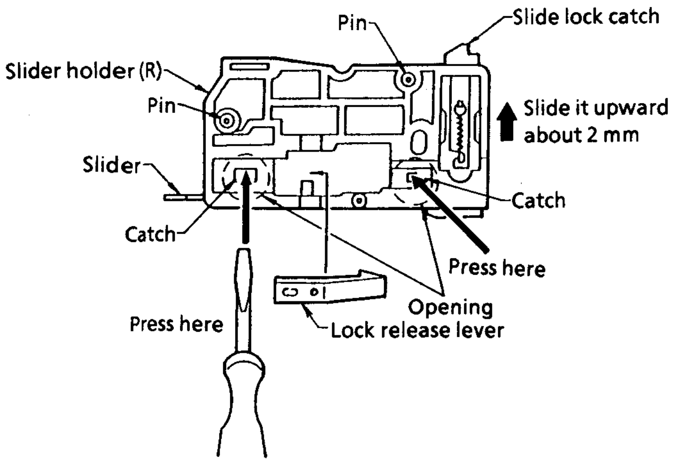

Pin
Slide lock catch
Slider holder (R)
Pin
Slide it upward about 2 mm
Slider
Catch
Catch
Press here
Opening
Lock release lever
Press here

Figure 1-18.

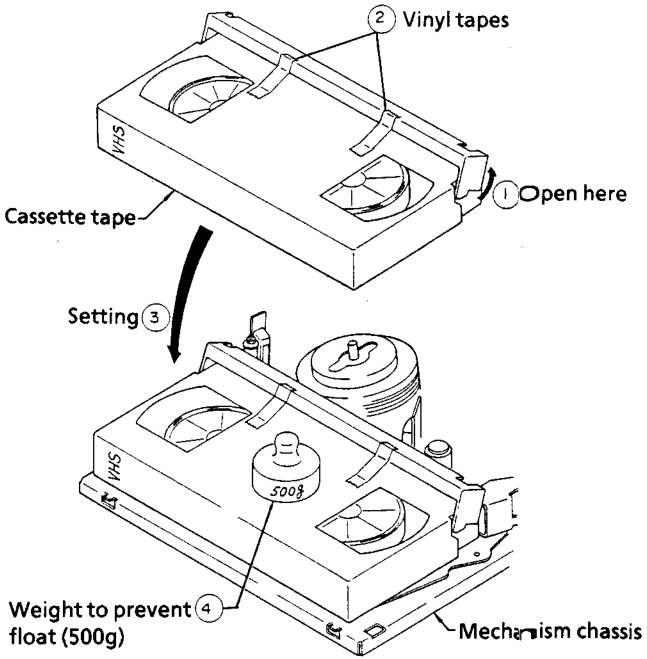
4. Remove the lock release lever from the slider holder (R)

- **Reassembly**

1. Follow the steps for removal in the reverse order. (See Figures 1-17 and 1-18.)
2. Attach the lock release lever to the slider holder (R).
3. Slide the slider holder (R) downward so that the two catches of the slider holder (R) fit the opening of the slider.
4. Slightly widen the cassette housing frames, and set the pins of slider holders (R) and (L) into the grooves of the cassette housing frames.
   Note:
   Check if the pins of the slider holders (R) and (L) fit the grooves of the cassette housing frames, and if the drive gear arm is sufficiently engaged with the slider holders.
5. Turn the coupling counterclockwise until the slider is at the cassette insertion opening.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Plug in the power cord.
2. Turn on the power switch.
3. Open the lid ① of a cassette tape by hand.
4. Hold the lid with two pieces of vinyl tape ②.
5. Set the cassette tape in the mechanism chassis.
6. Stabilize the cassette tape with a weight ④ to prevent floating.
7. Perform running test.


② Vinyl tapes
VHS
① Open here
Cassette tape
Setting ③
VHS
500g
Weight to prevent ④ float (500g)
Mechanism chassis

Note:
The weight should not be more than 500 g.

Figure 1-19.

REPLACEMENT AND HEIGHT CHECKING AND ADJUSTMENT OF REEL DISKS

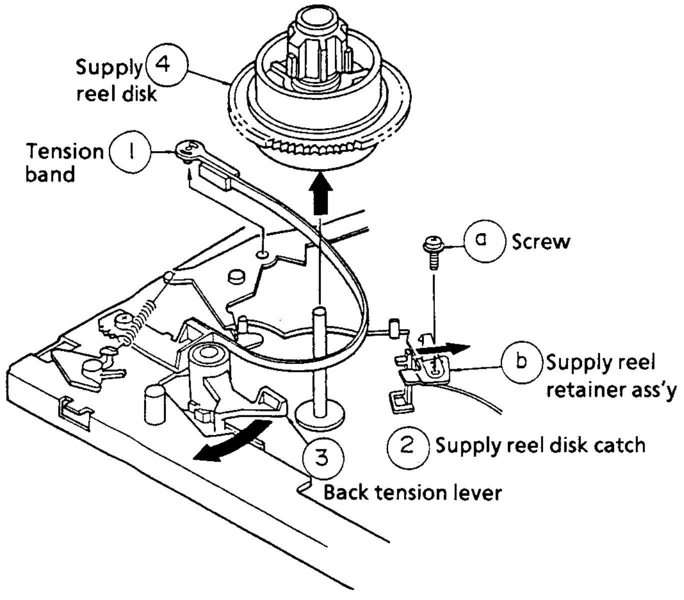
1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Set the idler gear in the center (neutral).

- **Removal (Supply reel disk)**

1. Remove the tension band ①. (Take care not to deform it.)
2. Unscrew the screw ⓐ and remove the supply reel retainer assembly ⓑ.
3. Release the supply reel disk catch ② and back tension lever ③.
4. Pull the supply reel disk upward.

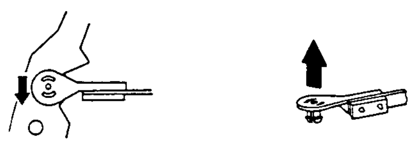
Notes:

1. Take care not to deform the tension band.
2. Check and adjust the tension pole position. (See page 30.)
3. Be careful not to damage the gear and the idler gear on the supply reel disk.
4. Press the tension band in the direction of the arrow for removal (See Figure 1-20(b)).


4 Supply reel disk
1 Tension band
a Screw
b Supply reel retainer ass'y
2 Supply reel disk catch
3 Back tension lever

(a)

Note:
When the tension band is pressed in the direction of the arrow for removal, the catch is hard to be deformed.



(b)

Figure 1-20.

- **Removal (Take-up reel disk)**

1. Unscrew the screw ⓒ and remove the take-up reel retainer.
2. Release the take-up reel disk catch ①.
3. Pull the take-up reel disk ② upward.

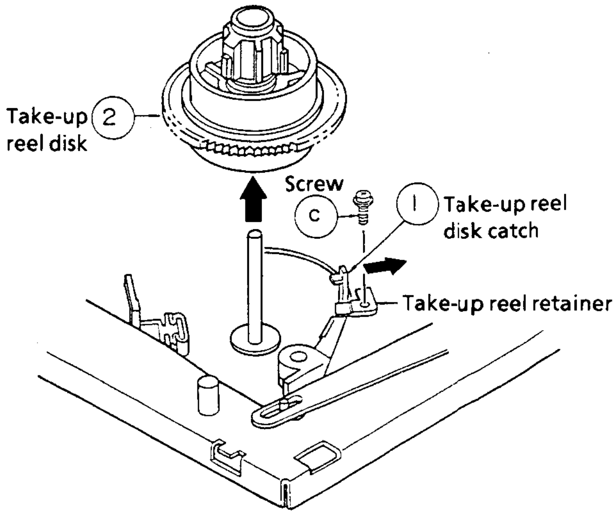

2 Take-up reel disk
Screw
c
1 Take-up reel disk catch
Take-up reel retainer

Figure 1-21.

- **Reassembly (Supply reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the supply reel disk catch ② and back tension lever ③.
3. Install a new supply reel disk ④ onto the shaft.
4. Replace the tension band ⑤ around the supply reel disk, and insert it to the hole of the tension arm.
5. Replace the supply reel retainer assembly ⓑ in place, and tighten up the screw ⓐ.

Notes:

1. Take enough care not to deform the tension band during installation of the supply reel disk.
2. Be careful not to damage the supply reel disk gear, back tension lever, supply reel disk catch, or the like with tools.

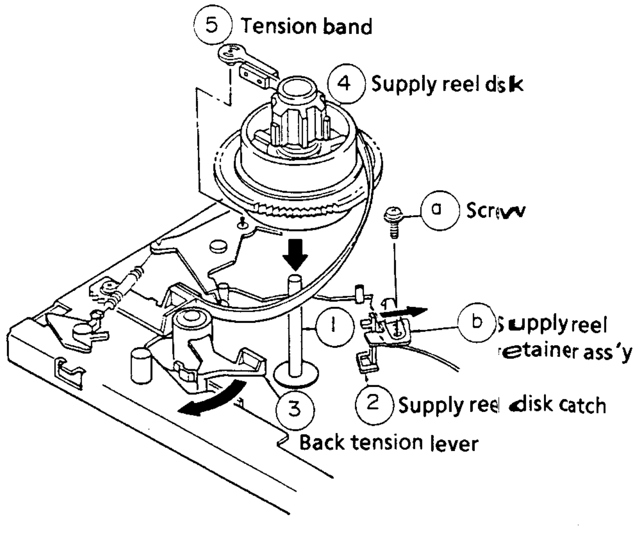
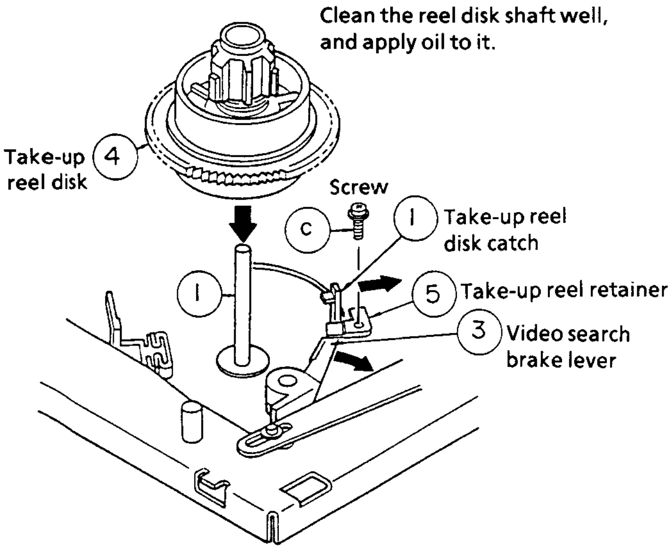

5 Tension band
4 Supply reel disk
a Screw
1
b Supply reel retainer ass'y
3
2 Supply reel disk catch
Back tension lever

Figure 1-22.

- **Reassembly (Take-up reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the take-up reel catch ② and video search brake lever ③.
3. Install a new take-up reel disk ④ onto the shaft.
4. Replace the take-up reel retainer ⑤ in position and tighten up the screw ©.

Note:
Take care not to damage the video search brake lever.


Clean the reel disk shaft well, and apply oil to it.
Take-up reel disk 4
Screw
c
1 Take-up reel disk catch
1
5 Take-up reel retainer
3 Video search brake lever

Apply a thin tip driver to the arrow position in releasing for easier setting of the take-up reel disk.

Figure 1-23.

* After reassembly, check the video search rewind back tension (see page 29), and check the brake torque (see page 31).

- **Height checking and adjustment**

  Note:
  Place the master plane onto the mechanism unit, taking care not to hit the drum (see Figure 1-24).

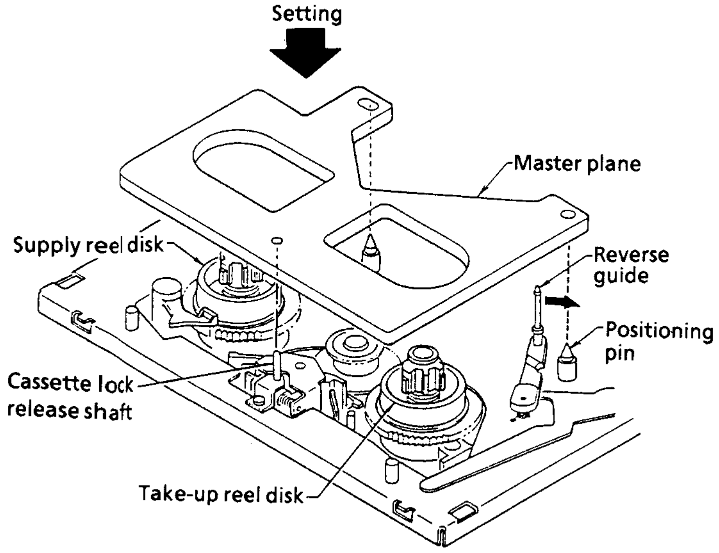

Setting
Master plane
Supply reel disk
Reverse guide
Positioning pin
Cassette lock release shaft
Take-up reel disk

Figure 1-24.

Set the master plane releasing the reverse guide by a finger.

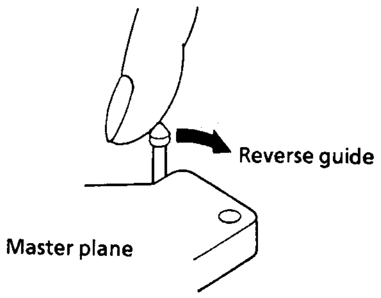
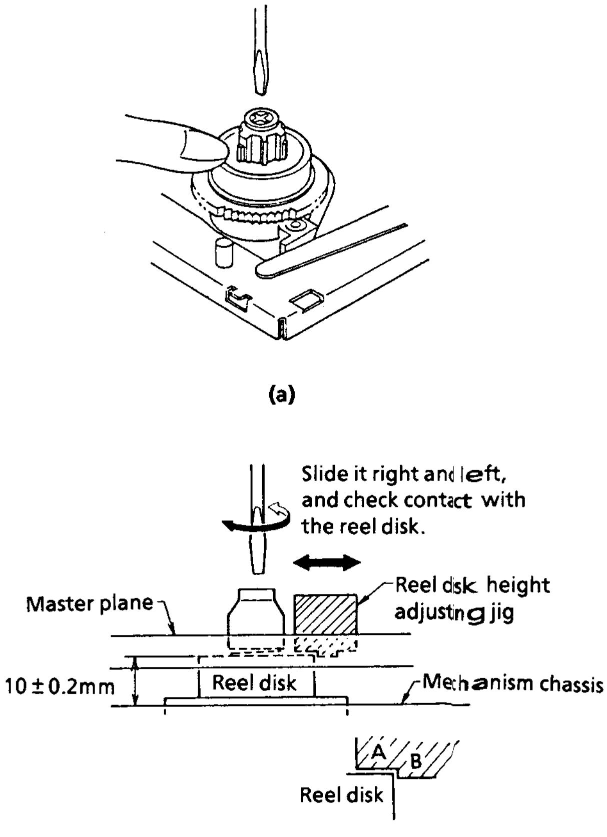

Reverse guide
Master plane

Figure 1-25.

1. For height adjustment, press the reel disk with a finger, and turn it right and left with a screwdriver (see Figure 1-26 (a)).
2. Check that the reel disk is lower than part A but higher than part B. If the height is not correct, adjust the height adjusting screw (see Figure 1-26 (b)).

Note:
Whenever replacing the reel disk, perform the height checking and adjustment.


Slide it right and left, and check contact with the reel disk.
Master plane
Reel disk height adjusting jig
10 ± 0.2mm
Reel disk
Mechanism chassis
A
B
Reel disk

(a)

(b)

Figure 1-26.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- **Remove the cassette housing control assembly.**

- **Setting**

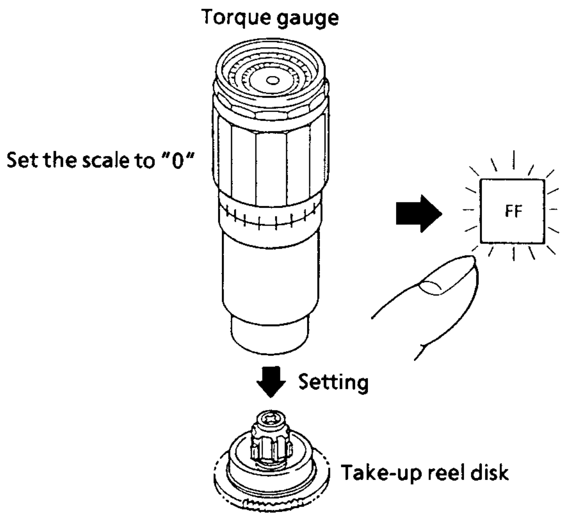

Torque gauge
Set the scale to "0"
FF
Setting
Take-up reel disk

Figure 1-27.

- **Checking**

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction.

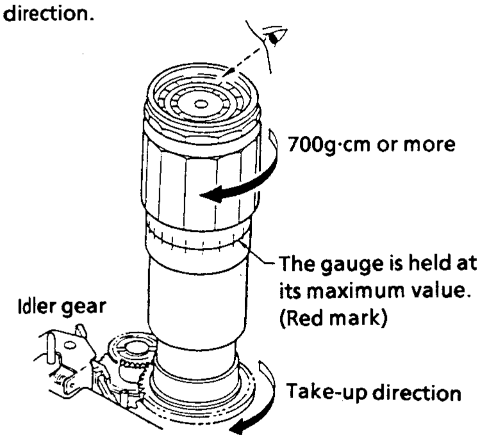

700g·cm or more
The gauge is held at its maximum value. (Red mark)
Idler gear
Take-up direction

Figure 1-28.

- **Adjustment**

1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- Remove the cassette housing control assembly.

- **Setting**

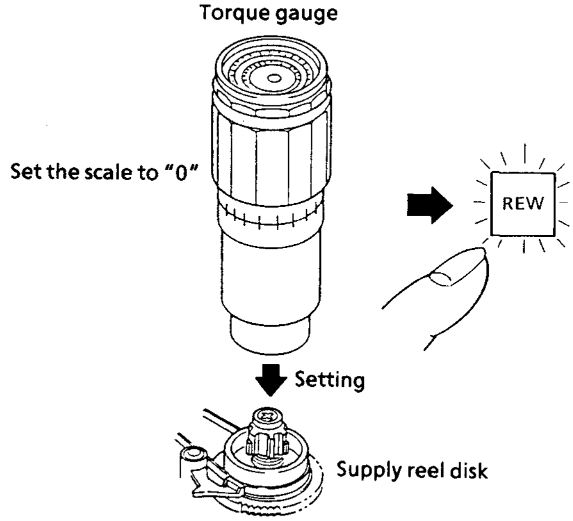

Torque gauge
Set the scale to "0"
REW
Setting
Supply reel disk

Figure 1-29.

- **Checking**

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction.

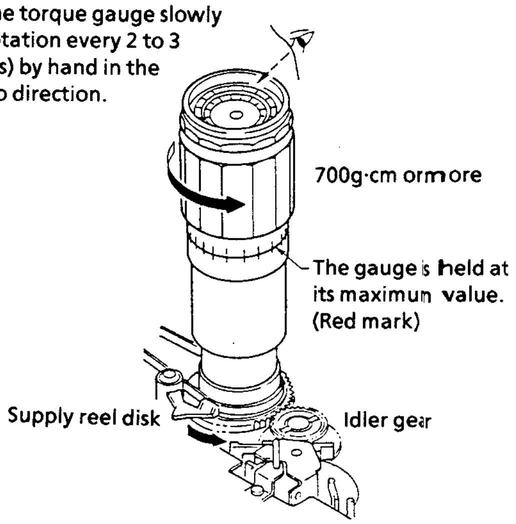

700g·cm ormore
The gauge is held at its maximum value. (Red mark)
Supply reel disk
Idler gear

Figure 1-30.

- **Adjustment**

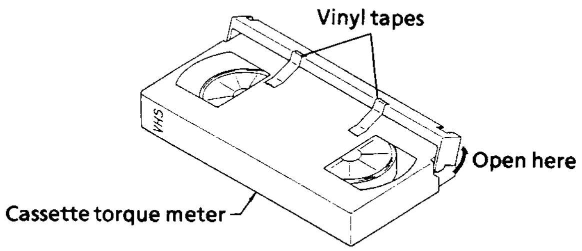
1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

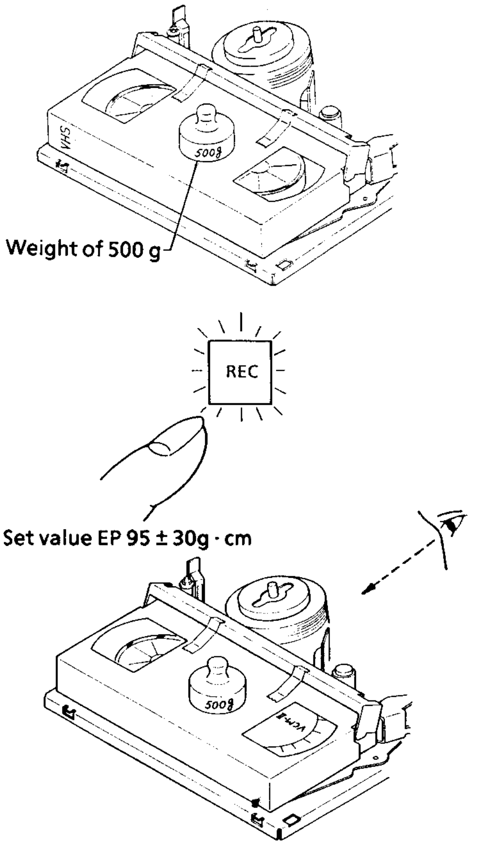
1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN PLAYBACK MODE

1. Remove the cassette housing control assembly.
2. Open the lid of the cassette torque meter, and hold it with two pieces of vinyl tapes.



Load a cassette torque meter into the unit.



Set value EP 95 ± 30g · cm

Figure 1-31.

- **Checking**

1. Check that the torque is in the range of 95 ± 30 g·cm.
2. The torque fluctuates due to the rotational deviation of the reel drive unit. Use the center of the fluctuation as the value.
3. Place the unit in the EP record mode, and check that the take-up torque is within the range.

- **Adjustment**

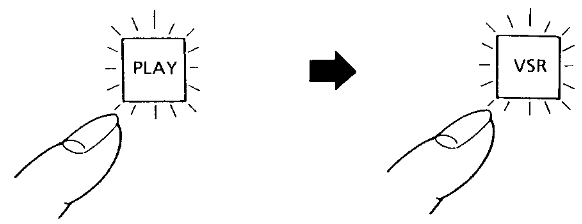
If the take-up torque in the playback mode is outside the range, replace the take-up reel disk.

Note:
Stabilize the cassette torque meter to prevent floating.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

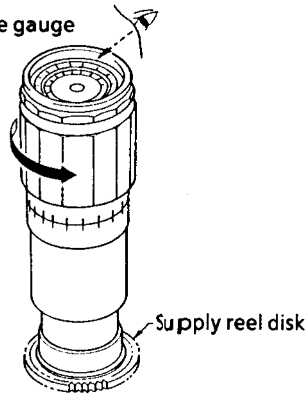
- **Remove the cassette housing control assembly.**

- **Checking**



Push the play button to place the unit in the playback mode.

Push video search rewind button to place the unit in the video search rewind mode.



Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 170 ± 40g·cm.

Figure 1-32.

Note:
Set the torque gauge securely on the supply reel disk. If it is not secure, the measurement will be incorrect.

- **Adjustment**

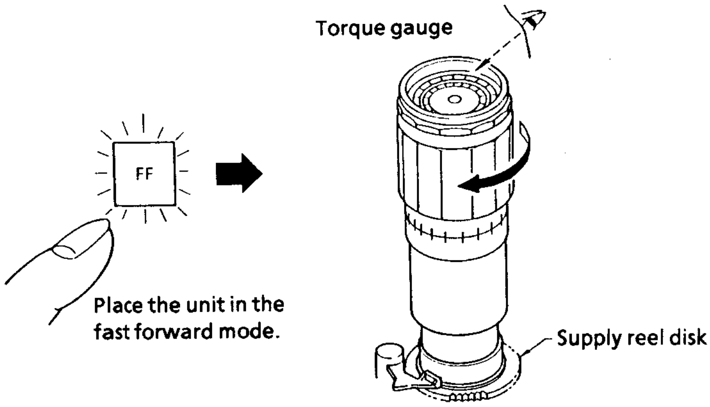
If the take-up torque in video search rewind mode is outside the range, replace the supply reel disk.

Note:
The torque fluctuates due to the rotational deviation of the supply reel disk. Use the center of the fluctuation at the value.

CHECKING THE FAST FORWARD BACK TENSION

- **Remove the cassette housing control assembly.**

- **Checking**


Torque gauge
FF
Supply reel disk

Place the unit in the fast forward mode.

Place the torque gauge on the supply reel disk, and turn it clockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5g·cm.

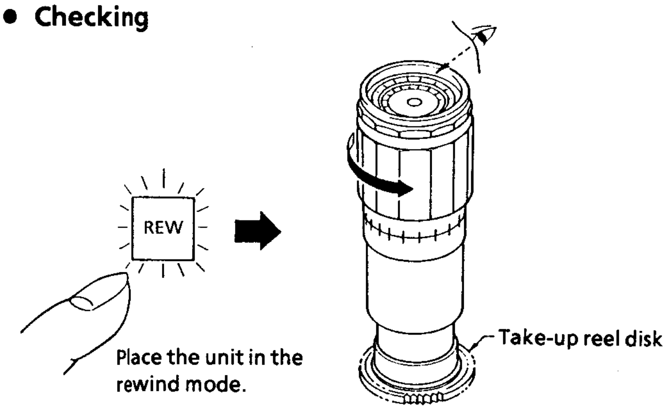
Figure 1-33.

Note:
Set the torque gauge securely on the supply reel disk. If the torque gauge is not securely set on the reel disk, measurement will be incorrect.

CHECKING THE REWIND BACK TENSION

- **Remove the cassette housing control assembly.**

- **Checking**


REW
Take-up reel disk

Place the unit in the rewind mode.

Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5g·cm.

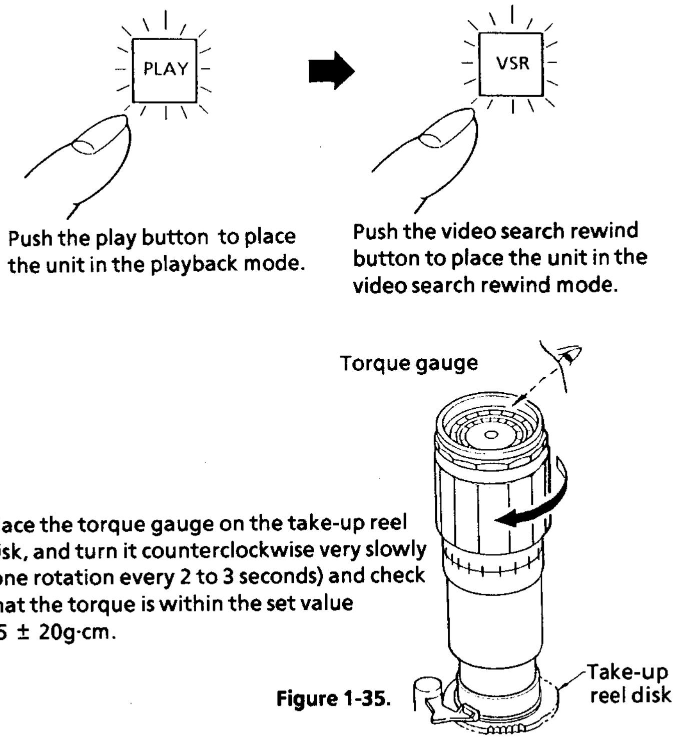
Figure 1-34.

Note:
Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- **Remove the cassette housing control assembly.**

- **Checking**


PLAY
VSR
Torque gauge
Take-up reel disk

Push the play button to place the unit in the playback mode.

Push the video search rewind button to place the unit in the video search rewind mode.

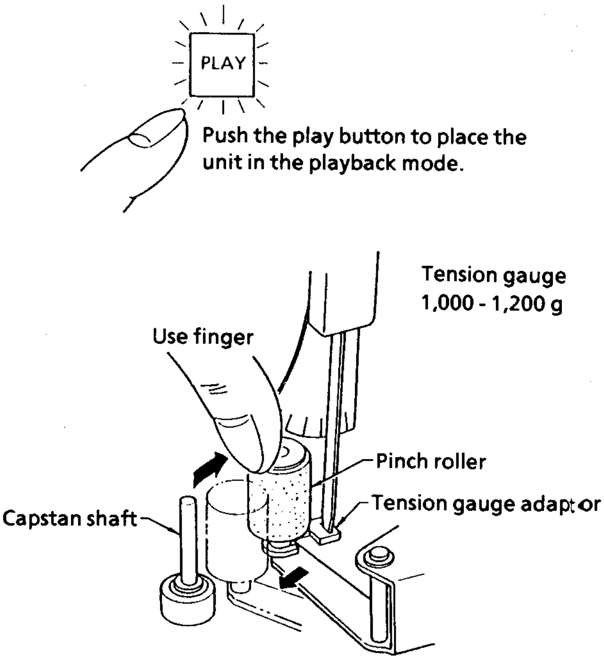
Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 45 ± 20g·cm.

Figure 1-35.

Note:
Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE PINCH ROLLER PRESSURE

- **Remove the cassette housing control assembly.**


PLAY
Tension gauge
1,000 - 1,200 g
Use finger
Pinch roller
Tension gauge adaptor
Capstan shaft

Push the play button to place the unit in the playback mode.

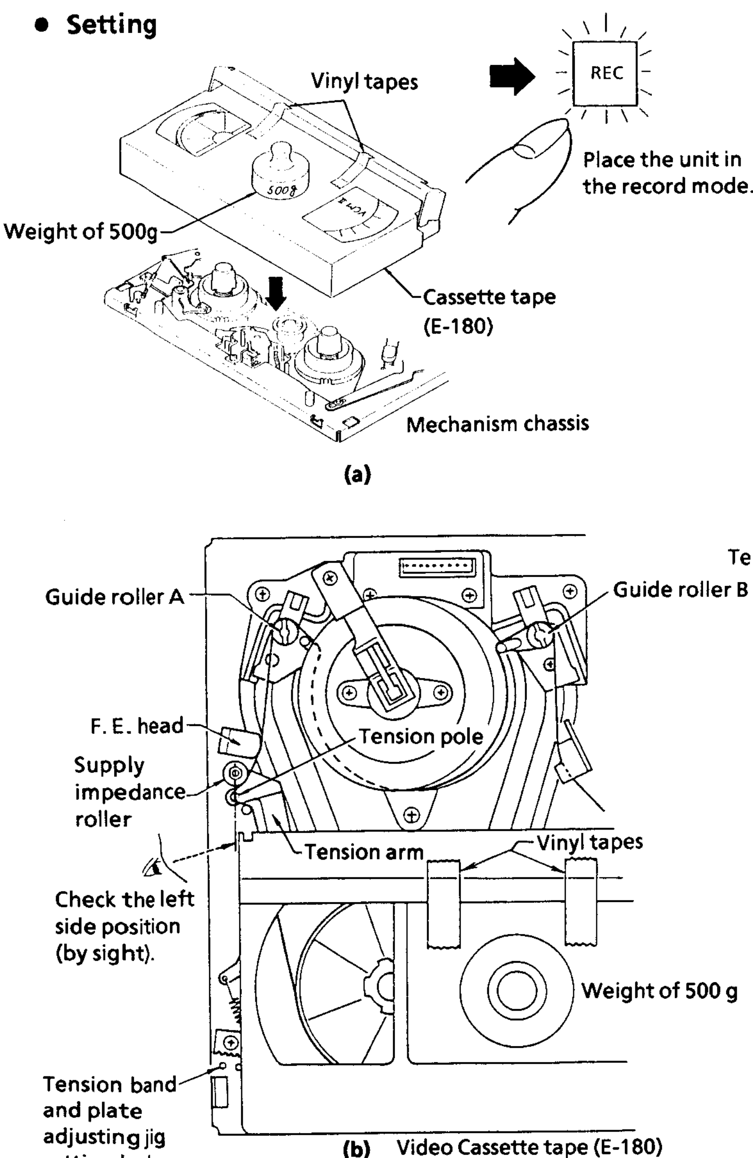
Figure 1-36.

1. Detach the pinch roller from the capstan shaft.
2. Set the tension gauge by hooking the tension gauge adapter onto the pinch roller shaft.
3. Gradually release the pressure to allow the pinch roller to touch the capstan shaft. When the pinch roller just touches the capstan shaft, read the indication on the gauge.
4. Check that the reading of the tension gauge is in the range of 1000 to 1200 g.

CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

- **Remove the cassette housing control assembly.**

- **Setting**


Vinyl tapes
REC
Place the unit in the record mode.
500g
Weight of 500g
Cassette tape (E-180)
Mechanism chassis
Guide roller A
Guide roller B
F. E. head
Tension pole
Supply impedance roller
Tension arm
Vinyl tapes
Check the left side position (by sight).
Weight of 500 g
Tension band and plate adjusting jig setting hole

(a)

(b) Video Cassette tape (E-180)

Figure 1-37.

- **Checking**

1. The guide rollers (A, B) operate to bring the tape outside the cassette tape and simultaneously the tension pole moves to the left, loading the tape. At that time (loading completed), check the position of the tension pole.
2. At the beginning of the tape (E-180), check that the tension pole's left side is aligned with the supply impedance roller's center by sight.
3. Check that the end of the tape is neither curled against the flange of the supply impedance roller nor over it.
4. During the video search rewind mode with no cassette tape in place, check that the supply reel disk is free from the tension band.

- **Position adjustment (record mode)**

When the tension pole is at the right of the supply impedance roller's center:

Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting Jig until it is in the set value range (center). Then secure it with the tightening screw.

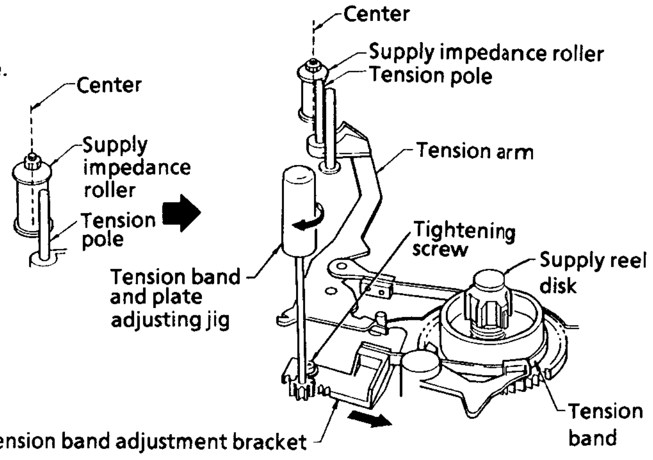

Center
Supply impedance roller
Tension pole
Center
Supply impedance roller
Tension pole
Tension arm
Tightening screw
Supply reel disk
Tension band and plate adjusting jig
Tension band adjustment bracket
Tension band

Figure 1-38.

- **Position adjustment (record mode)**

When the tension pole is at the left of the supply impedance roller's center:

Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting Jig until it is in the set value range (center). Then secure it with the tightening screw.

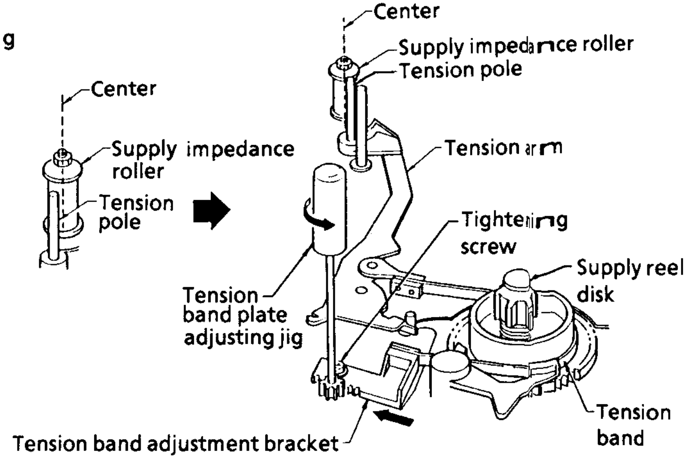

Center
Supply impedance roller
Tension pole
Center
Supply impedance roller
Tension pole
Tension arm
Tightening screw
Supply reel disk
Tension band plate adjusting jig
Tension band adjustment bracket
Tension band

Figure 1-39.

CHECKING AND ADJUSTMENT OF RECORD / PLAYBACK BACK TENSION

- **Remove the cassette housing control assembly.**

- **Checking**

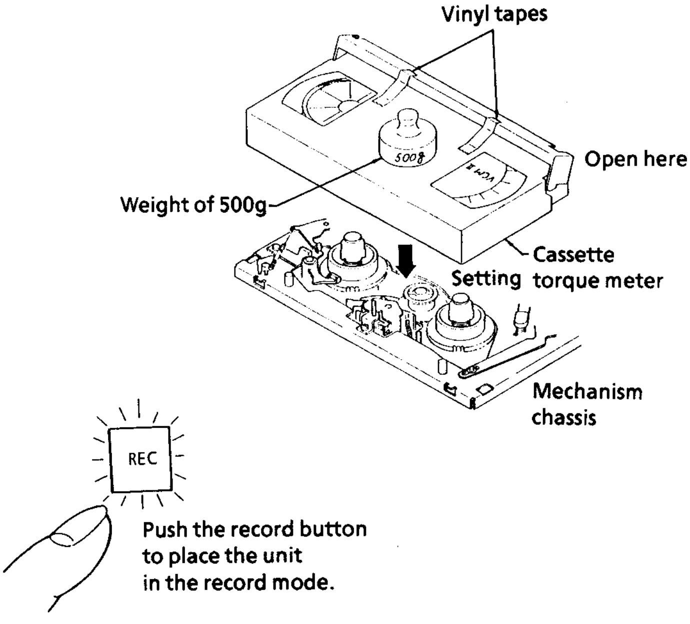

Vinyl tapes
Open here
Weight of 500g
500g
Cassette
Setting torque meter
Mechanism chassis
REC
Push the record button to place the unit in the record mode.

Figure 1-40.

1. Put a cassette torque meter into the unit.
2. Push the record button to place the unit in the record mode.
3. Check that the back tension indicated by the gauge is within the set range 31 to 36 g·cm.

Notes:

1. Make sure that the video cassette tape is over the retaining guide.
2. Make sure that the tape is not slack nor damaged at either end.

- **Adjustment**

1. If the reading of the cassette torque meter is less than specified, move the tip of the tension spring hook plate toward the hole A.
2. If the reading of the cassette torque meter is more than specified, move the tip of the tension spring hook plate toward the hole B.
   Note:
   Put a thin screw driver (–) in the shaft hole, lean it toward you, and turn it for easier shift of the tension spring hook plate in the direction of A or B.

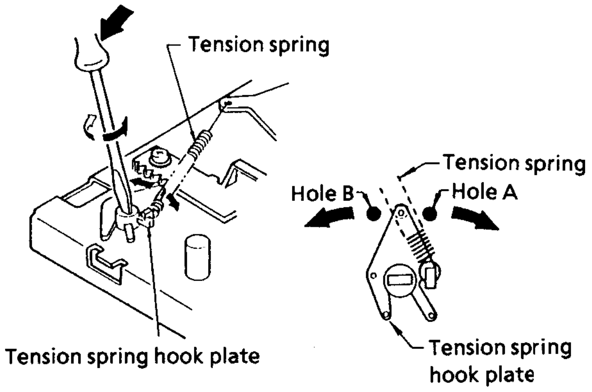

Tension spring
Tension spring
Hole B
Hole A
Tension spring hook plate
Tension spring hook plate

Figure 1-41.

CHECKING THE BRAKE TORQUE

- **Checking the brake torque at the supply side**

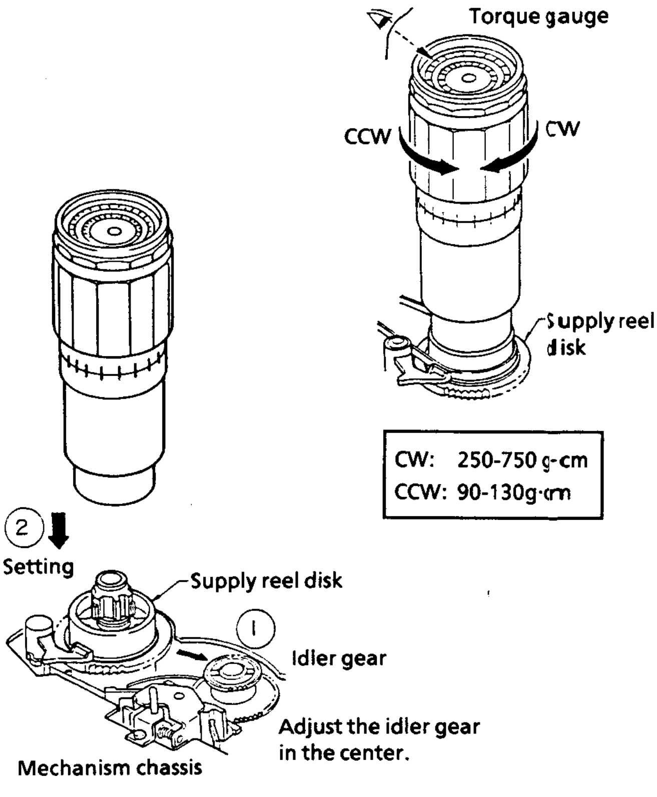

Torque gauge
CCW
CW
Supply reel disk
CW: 250-750 g·cm
CCW: 90-130g·cm
②
Setting
Supply reel disk
①
Idler gear
Adjust the idler gear in the center.
Mechanism chassis

Figure 1-42.

1. Remove the cassette housing control assembly.
2. Place the mechanism in the stop mode by unplugging the power cord in the fast forward or rewind mode.
3. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the supply brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CW direction = 250 to 750 g·cm, CCW direction = 90 to 130 g·cm, and that the brake torque in the CW direction is at least twice as high as that in the CCW direction.

- **Checking the brake torque at the take-up side**

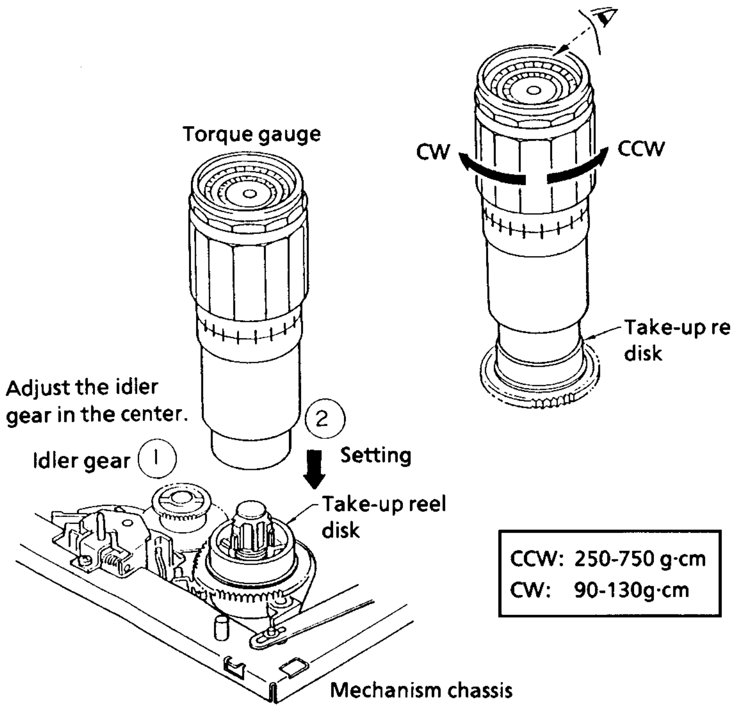

Torque gauge
CW
CCW
Take-up reel disk
Adjust the idler gear in the center.
Idler gear ①
②
Setting
Take-up reel disk
CCW: 250-750 g·cm
CW: 90-130g·cm
Mechanism chassis

Figure 1-43.

1. Remove the cassette housing control assembly.
2. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the take-up brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CCW direction = 250 to 750 g·cm, CW direction = 90 to 130 g·cm, and that the brake torque in the CCW direction is at least twice as high as that in the CW direction.

- **Adjustment of the brake torque at the supply side and the take-up side**

1. If the supply or take-up brake torque is outside the range, clean the supply or take-up reel disk break lever felt, then recheck the torque.
2. If the supply or take-up brake torque is still outside the range, replace the main brake or the main brake spring.

REPLACEMENT OF MAIN BRAKE

1. Remove the reel belt and the reel block FFC (Full Flat Cable).
2. Remove the cut washer ① off the brake shifter.
3. Unscrew the four screws ② and then the take-up reel retainer.
4. Remove the reel block assembly Ⓐ downward.
5. Remove the cut washer ③ first and then the reel pulley.
6. Unscrew the two screws ④ and detach the idler assembly.
7. Unhook the back tension lever spring ⑤ and remove the back tension lever ⑥. (Undo the hook under the reel chassis.)
8. Open the shifter latch ⑦ and remove the brake shifter assembly ⑧.
9. Release the reel disk catchesand ⑬ then remove the left and right reel disk assemblies ⑨ and ⑩.
10. Finally remove the main brake levers ⑪ and the main brake spring ⑫ .

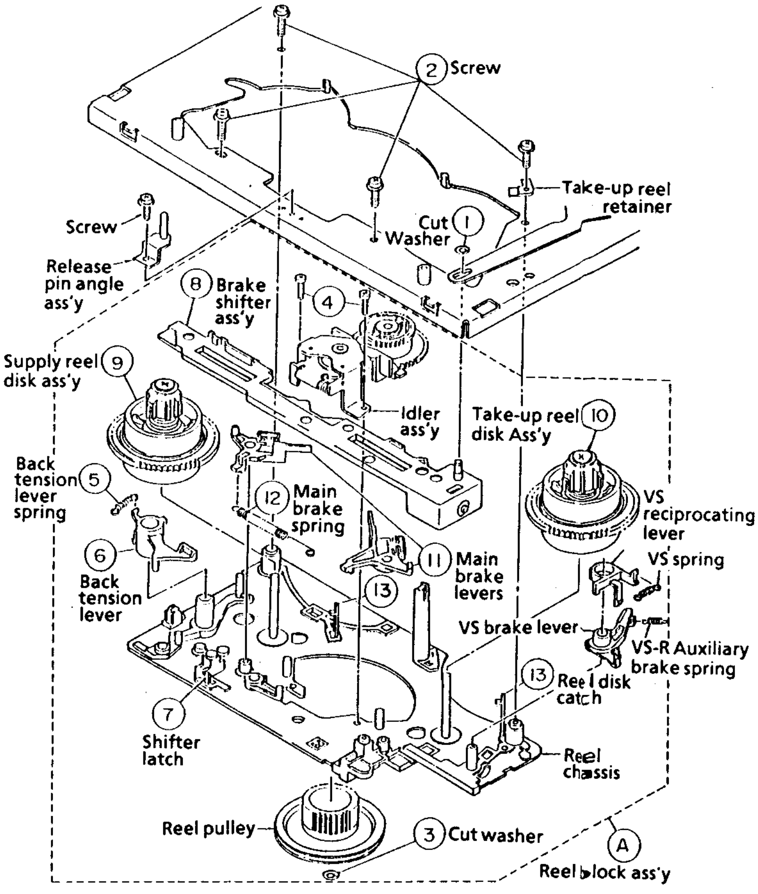

② Screw
Take-up reel retainer
Cut ① Washer
Screw
Release pin angle ass'y
⑧ Brake shifter ass'y
④
Supply reel ⑨ disk ass'y
Idler ass'y
Take-up reel ⑩ disk Ass'y
Back tension ⑤ lever spring
⑫ Main brake spring
VS reciprocating lever
⑥ Back tension lever
⑪ Main brake levers
⑬
VS spring
VS brake lever
VS-R Auxiliary brake spring
⑦ Shifter latch
⑬ Reel disk catch
Reel chassis
Reel pulley
③ Cut washer
Ⓐ Reel block ass'y

Figure 1-44.

Note:
When the main brake is replaced, perform the height checking and adjustment (see page 26), and the brake torque checking (see page 31).

REPLACEMENT OF A/C (Audio/Control) HEAD

1. Remove the cassette housing control assembly.
2. Place the unit in the unloading mode, and unplug the power cord.

- **Removal**

1. Loosen the tilt adjusting screw ①.
2. Remove the azimuth adjusting screw ②.
3. Remove the A/C head screw ③.
4. Unsolder the A/C head PWB soldered to the A/C head assembly.

Notes:

1. After replacement, be sure to perform the adjustment of the tape drive train (see page 34). Under any circumstances, avoid touching the head. Clean the head, if touched with your finger, with alcohol.
2. Take care that the azimuth spring does not fly off when removing the A/C head screw.

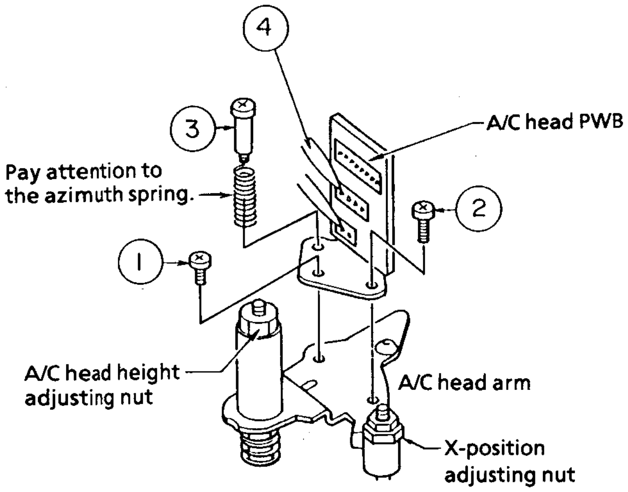

4
3
A/C head PWB
Pay attention to the azimuth spring.
2
1
A/C head height adjusting nut
A/C head arm
X-position adjusting nut

Figure 1-45.

- **Replacement**

1. Solder the removed A/C head PWB onto a new A/C head assembly.
2. The A/C head assembly is attached so that the A/C head arm and A/C head plate are roughly parallel to each other.

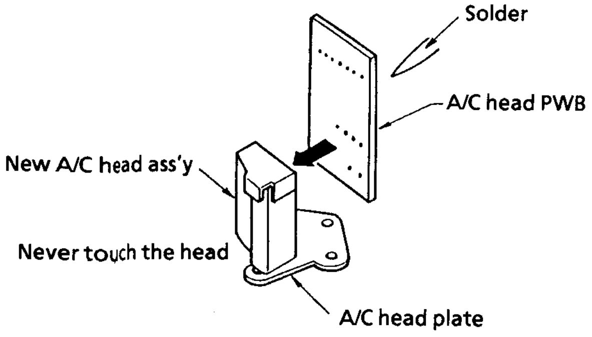

Solder
A/C head PWB
New A/C head ass'y
Never touch the head
A/C head plate

Figure 1-46.

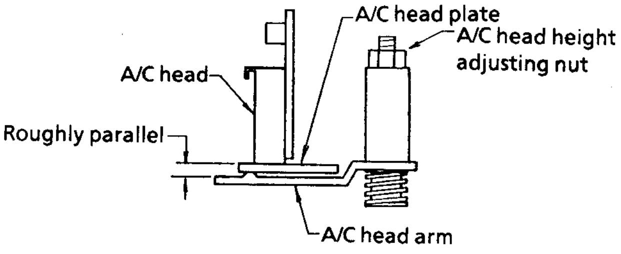
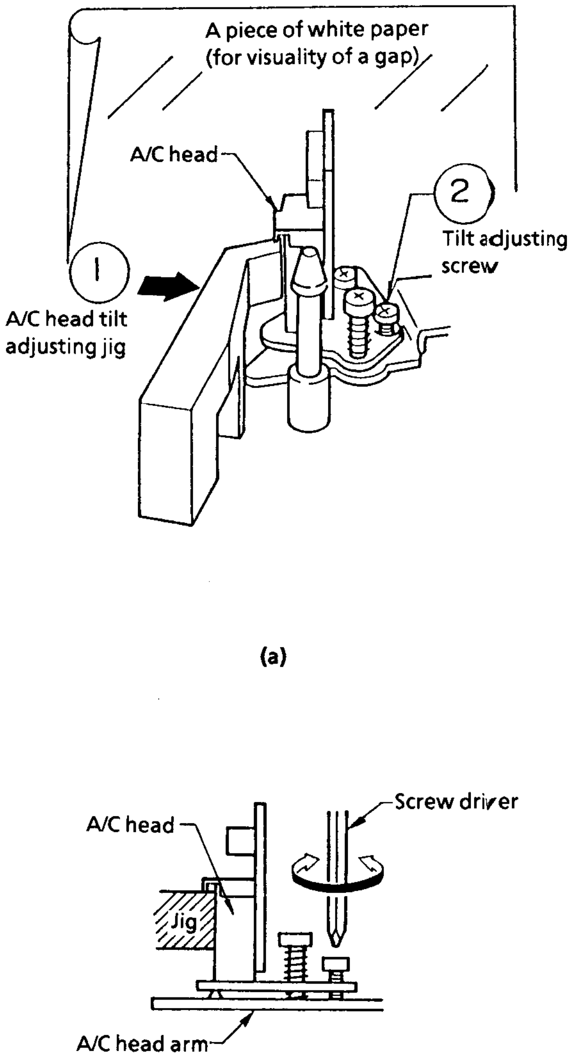

A/C head plate
A/C head height adjusting nut
A/C head
Roughly parallel
A/C head arm

Figure 1-47.

- **Adjustment**

[A/C head tilt angle]

1. Set the mechanism to the loading mode.
2. Place the A/C head tilt adjusting Jig ①.
3. Slowly turn the tilt adjusting screw ② with a screw driver until there is no gap between the Jig and the A/C head.

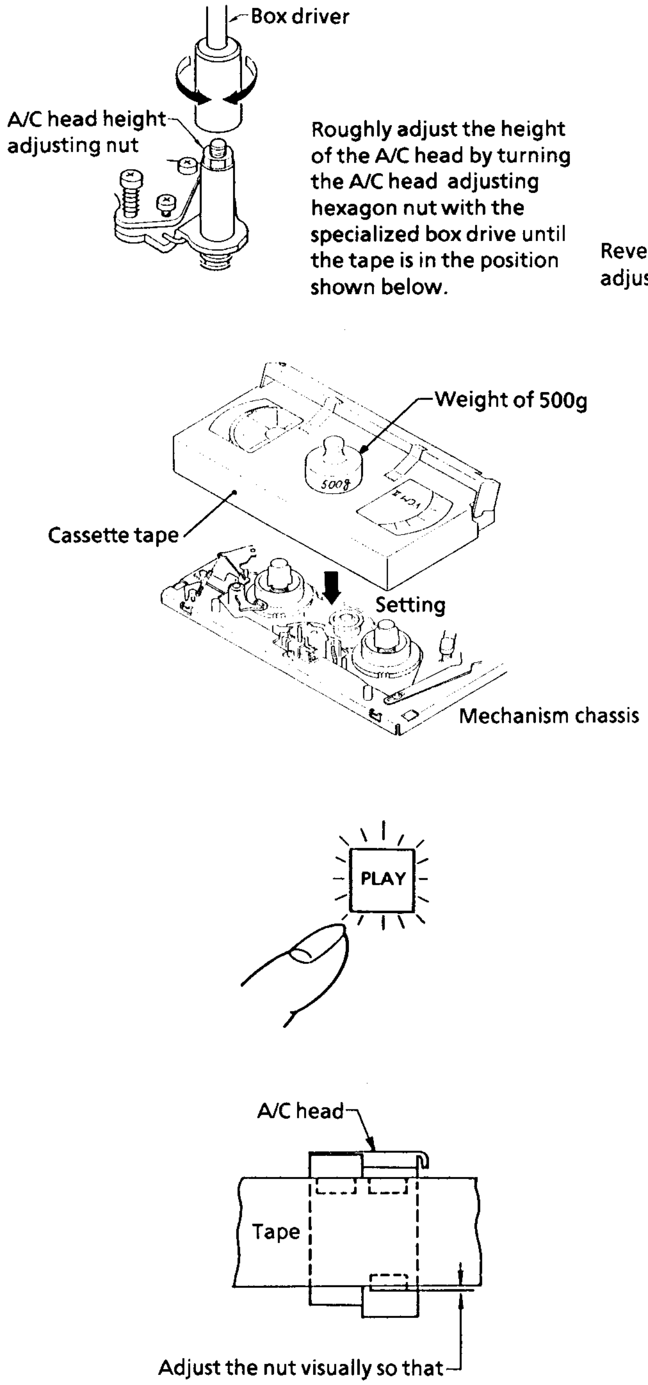

A piece of white paper (for visuality of a gap)
A/C head
2
Tilt adjusting screw
1
A/C head tilt adjusting jig
A/C head
Screw driver
Jig
A/C head arm

(a)

(b)

Figure 1-48.

[A/C head height rough adjustment]


Box driver
A/C head height adjusting nut
Weight of 500g
500g
Cassette tape
Setting
Mechanism chassis
PLAY
A/C head
Tape

Roughly adjust the height of the A/C head by turning the A/C head adjusting hexagon nut with the specialized box drive until the tape is in the position shown below.

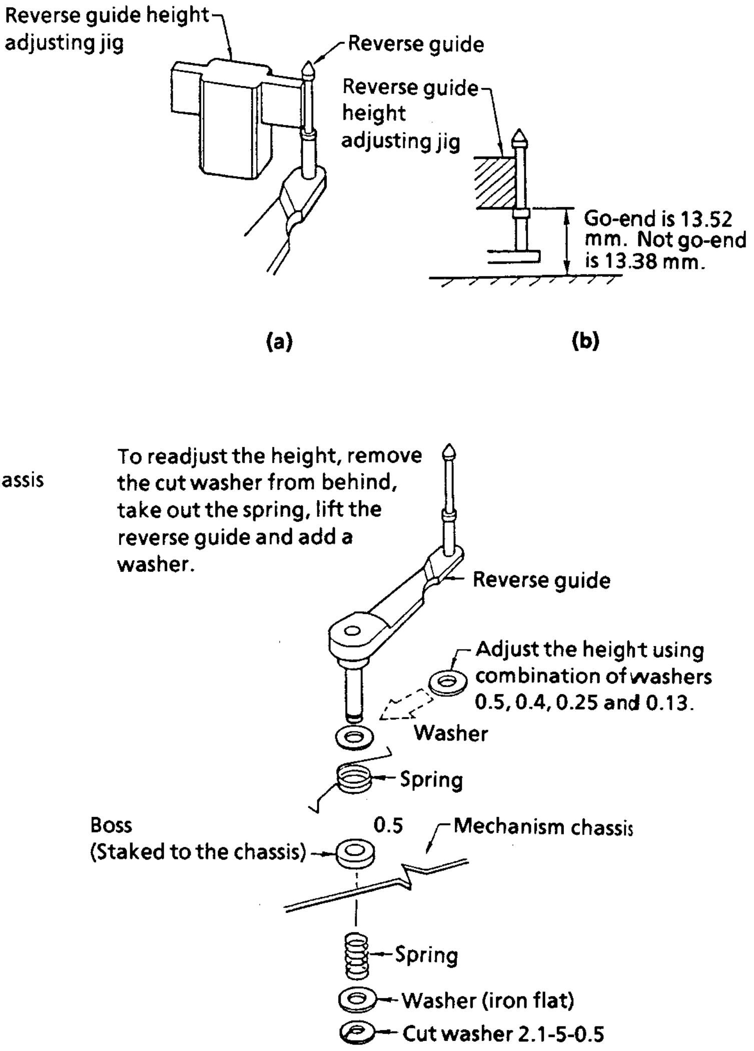
Adjust the nut visually so that the control head is visible 0.3 to 0.5 mm below the bottom of the tape.

Figure 1-49.

HEIGHT ADJUSTMENT OF REVERSE GUIDE

Note:

Before the rough adjustment of the tape drive train, check that the retaining guide height is within the value in Figure 1-50 by using the special Jigs.


Reverse guide height adjusting jig
Reverse guide
Reverse guide height adjusting jig
Go-end is 13.52 mm. Not go-end is 13.38 mm.
(a)
(b)
Reverse guide
Adjust the height using combination of washers 0.5, 0.4, 0.25 and 0.13.
Washer
Spring
Boss (Staked to the chassis)
0.5
Mechanism chassis
Spring
Washer (iron flat)
Cut washer 2.1-5-0.5
(c)

To readjust the height, remove the cut washer from behind, take out the spring, lift the reverse guide and add a washer.

Figure 1-50.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Remove the cassette housing control assembly.
2. Check and adjust the position of the tension pole. (See page 30.)
3. Check and adjust the video search rewind back tension. (See page 29.)
4. Set the tilt angle of the A/C head. (See page 33.)
5. Rough adjustment of tape drive train.
   a) Connect the oscilloscope to the test point for PB CHROMA envelope output (TP2201). Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP2202).
   b) Loosen the setscrew at the lower part of the guide roller, and adjust it with an adjusting screw driver (JIGDRIVERH-4) so that the guide roller turns smoothly. (Do not overloosen the setscrew, which causes insecurity of the guide roller.) (See Figure 1-51.)
   c) Set the alignment tape (monoscope pattern) on the reel disk, and place the unit in the playback mode.
   (Place a 500 g weight on the cassette tape to prevent floating of the cassette tape.)

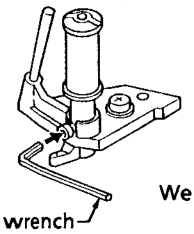


Figure 1-51.

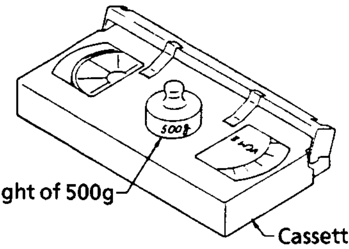
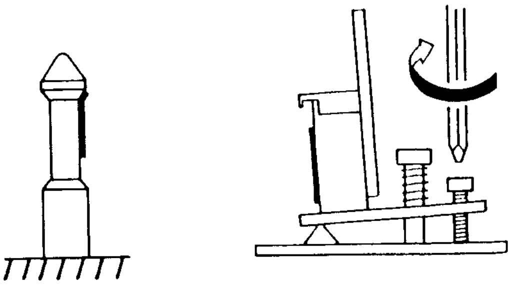
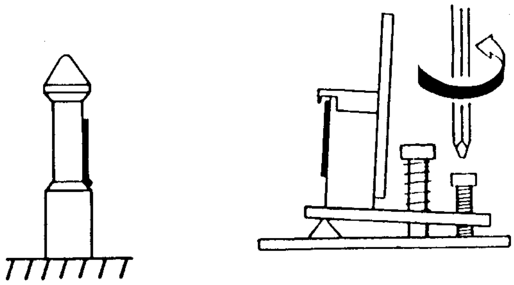


Figure 1-52.

   d) Change the envelope waveform from MAX to MIN, and MIN to MAX by pushing the (+) or (–) tracking button, and check a flat response is obtained on the waveform.
   e) If a flat response cannot be obtained, roughly adjust the guide rollers on the supply side and take-up side using an adjusting screw driver until a flat response can be obtained.
   f) Turn the A/C head tilt adjusting screw with a screwdriver to prevent the tape from wrinkling at the upper and lower flanges of the fixed guide.
      1) Wrinkles at the upper flange : Turn the above adjusting screw clockwise, as shown in Figure 1-53 (a).
      2) Wrinkles at the lower flange : Turn the above adjusting screw counterclockwise, as shown in Figure 1-53 (b).



(a)



(b)

Figure 1-53.

Notes:

1. Place the tracking control in the center position, and adjust the X-position adjusting nut so that the PB CHROMA envelop becomes maximum for easier rough adjustment of the tape drive train.
2. In the rough adjustment, pay particular attention to the outlet side.

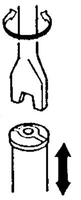


Figure 1-54.

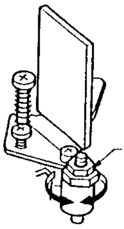


Figure 1-55.

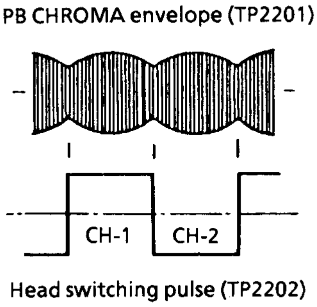


Figure 1-56.

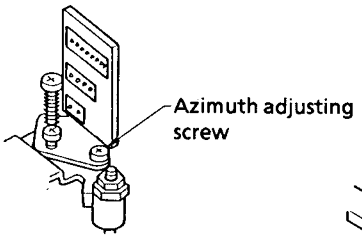


Figure 1-57.

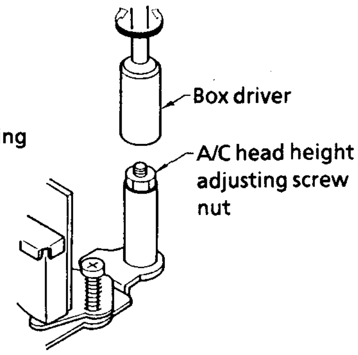


Figure 1-58.

6. Adjustment of A/C head height and azimuth
   - a) Connect an oscilloscope to the audio output. (Pin (7) of EL connector)
   - b) Use the alignment tape and play back its audio 7 kHz signal (monoscope pattern for video signal). Adjust the azimuth adjusting screw to obtain the maximum audio output on an oscilloscope. (See Figure 1-57.)
   - c) Use the alignment tape and play back its audio 1 kHz signal (colour bar for video signal) and slowly rotate the A/C head height adjusting nut with the special box driver to obtain the maximum audio output.
   - d) Perform the adjustment in b) again.
   - e) After this adjustment, apply glyptal to the screws and nuts to fix them.

7. Adjustment of tape drive train and X-Position.
   - a) Connect the oscilloscope to the test points (TP2201) for PB CHROMA envelope output. Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP2202).
   - b) Play back the tape drive train alignment tape.
   - c) Push the (+) or (–) button to change the envelope waveform from MAX to MIN, and MIN to MAX. Adjust the guide roller's height on the supply and take-up sides with an adjusting screw driver, to obtain an envelop waveform that is as flat as possible.
   - d) If the tape is above or below the helical lead, the PB CHROMA waveform will take the shape shown in Figure 1-59.
   - e) Adjust for maximum flatness of the envelope as the step 5, e) in page 35.

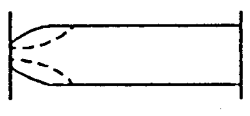
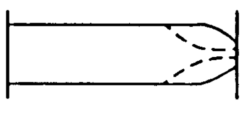
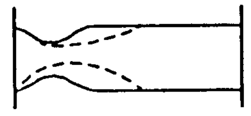
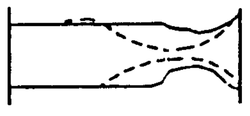
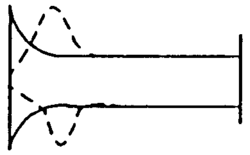
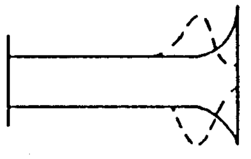
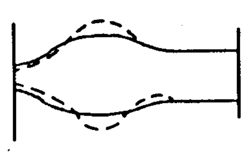
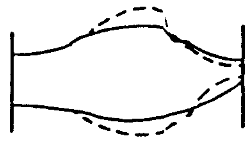
	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-59.

f) Push the (+) or (–) tracking button to check that a flat response is obtained on the envelope waveform.

g) Secure the guide roller by tightening the guide roller setscrew in the unloading mode.

h) Play back the tape drive train alignment tape to check that the envelope waveform does not change.

8. Adjustment of A/C head X-position.
   a) Push the (+) and (–) tracking buttons at the same time to the preset mode.
   b) Rotate the X-position adjusting nut with an adjusting box driver, and adjust the A/C head position for maximum head switching pulse low side envelope.
   c) Adjust the playback switching point.
   d) Check the flatness of the envelope waveform and sound by playing back a recorded tape.

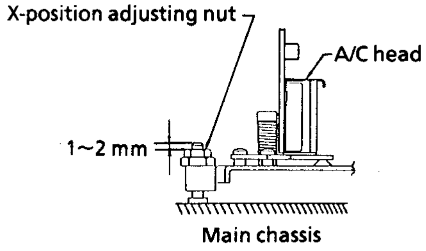

X-position adjusting nut
A/C head
1~2 mm
Main chassis

Figure 1-60.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- **Remove the cassette housing control assembly.**

- **Removal (Follow the order of indicated numbers.)**

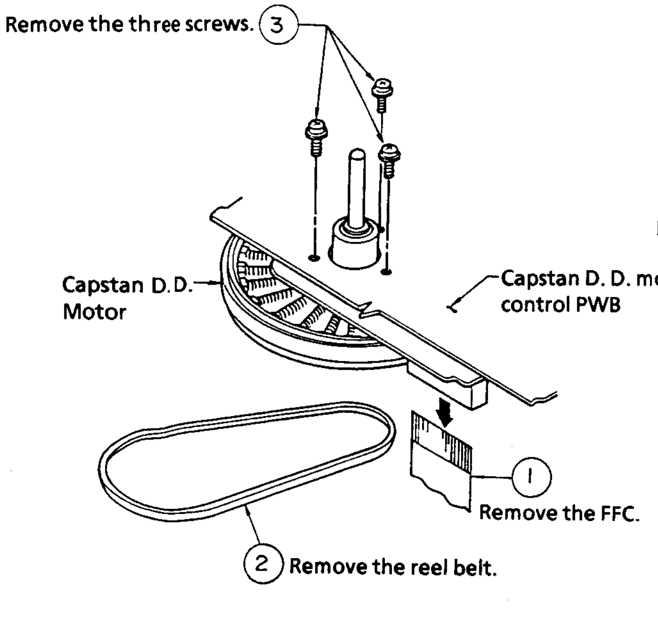

Remove the three screws. ③
Capstan D.D. Motor
Capstan D. D. motor control PWB
① Remove the FFC.
② Remove the reel belt.

Figure 1-61.

- **Reassembly**

1. Mount the capstan motor on the mechanism chassis making sure not to allow the capstan shaft to hit the mechanism chassis, and attach it with the three screws.
2. Insert the FFC into the capstan D.D. motor control PWB.
3. Attach the reel belt.

Notes:

1. After installing the capstan D.D. motor, be sure to rotate the capstan D.D. motor and check the movement.
2. Check and adjust the servo circuit.

REMOVAL AND REASSEMBLY OF THE LOADING GEAR BLOCK

Notes:

1. Remove the cassette housing control assembly.
2. Remove the reel belt.
3. Remove the reel block.

- **Removal**

Notes:

1. Use care not to deform the parts hooked to the slow brake shaft cap, take-up loading gear and supply loading gear as shown in Figure 1-62.

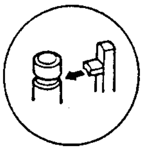


Figure 1-62.

2. In removing the loading gear, secure the guide roller with a rubber band or the like beforehand for easier reassembly.

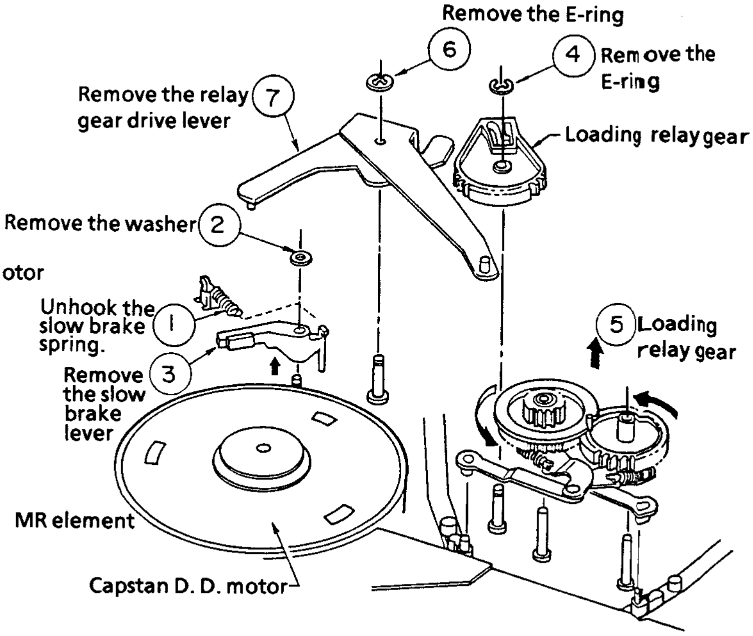

Remove the E-ring ⑥
④ Remove the E-ring
Remove the relay ⑦ gear drive lever
Loading relay gear
Remove the washer ②
Unhook the ① slow brake spring.
Remove ③ the slow brake lever
⑤ Loading relay gear
MR element
Capstan D. D. motor

Figure 1-63.

1. Remove the slow brake spring ①.
2. Remove the washer ②.
3. Remove the slow brake lever ③.
4. Remove the E ring ④.
5. Rotate the take-up loading gear, take-up loading arm assembly, supply loading gear and supply loading arm assembly slightly in the loading direction, and take them ⑤ all out.
6. Remove the E ring ⑥.
7. Remove the relay gear drive lever ⑦.

- **Reassembly**
  Reverse the procedure. Be sure to match the tally marks on the gears.

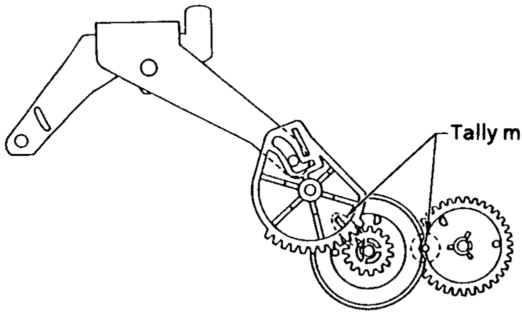


Figure 1-64.

Notes:
1. When reassembling, apply specified grease to the following points; all the gear teeth, all the gear shafts and the cam groove of loading relay gear.
2. Be careful not to deform the supply/take-up loading arms.
3. Be careful to keep clean the slow brake lever felt.
4. Be also careful to keep the outer surface of the capstan D.D. motor free from dust and dirt. (If stained, the MR (Magnet Resistor) element might be damaged.)
5. Take care not to deform the anti-fall hooks of the slow brake lever, slow brake shaft cap and supply/ take-up loading gears more than required.

REMOVAL AND REASSEMBLY OF LOADING BLOCK

- **Removal**

1. Remove the cassette loading belt ①.
2. Unscrew the three screws ②.
3. Pull the loading block upward.

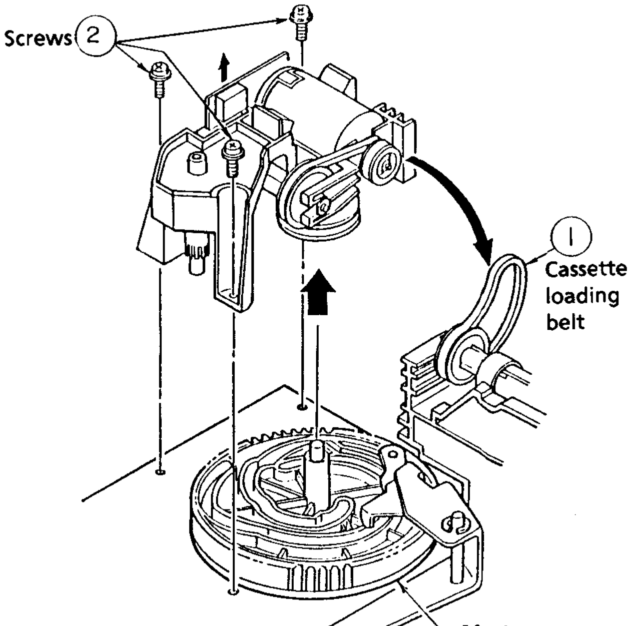


Figure 1-65.

Note:
When using a magnetic screw driver in removal of three screws, do not allow the magnetic driver to hit the A/C head or drums.

- **Reassembly**

1. Turn the master cam all the way counter-clockwise.
2. Match the tally mark on the cam switch with the mating mark. Fit the loading block and the master cam with each other. Tighten up the three screws.

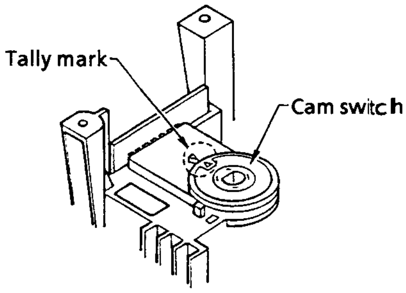


Figure 1-66.

3. Finally connect the leads and apply the cassette loading belt.

Notes:
1. Be careful not to scratch the gear.
2. Be careful not to stain the belt. If dirty, clean it up with the specified cleaning liquid.

REPLACEMENT OF LOADING MOTOR

1. Set the cassette ejected condition by placing the unit in the cassette eject mode.
2. Unplug the power cord.
3. Remove the loading block in accordance with the statements and drawings above.

- **Removal**

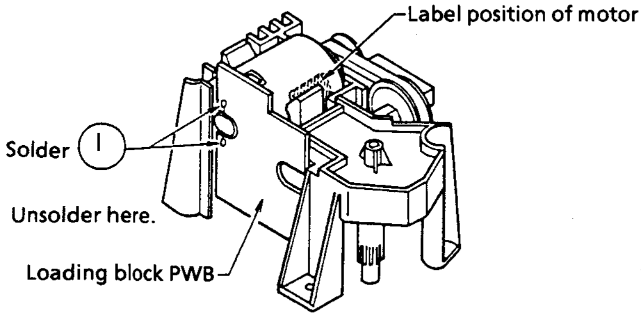
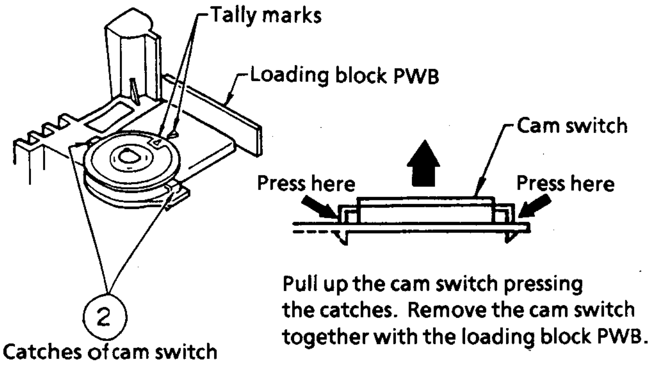

Label position of motor
Solder ①
Unsolder here.
Loading block PWB

Figure 1-67.

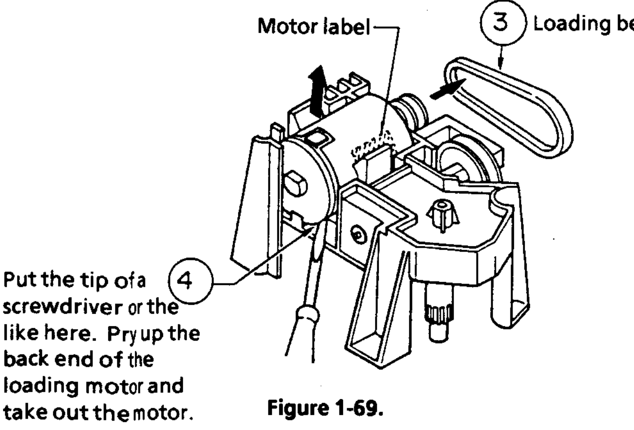
1. Unsolder the leads ① from the loading motor.
2. Unlock the left and right catches ② of the cam switch off the loading block. Take out the cam switch and loading block PWB (See Figure 1-68).


Tally marks
Loading block PWB
Cam switch
Press here
Press here
②
Catches of cam switch

Pull up the cam switch pressing the catches. Remove the cam switch together with the loading block PWB.

Figure 1-68.

3. Take out the loading belt ③.
4. Pry up the back end of the loading motor with a screw driver or the like as in Figure 1-69 and take out the motor.


Motor label
③ Loading belt
④

Put the tip of a screwdriver or the like here. Pry up the back end of the loading motor and take out the motor.

Figure 1-69.

- **Reassembly**

1. Remove the loading motor, and mount a new loading motor as in Figure 1-70.
2. Place the loading motor so that its label is visible as shown in Figure 1-70. Make sure that the screw hole at the motor shaft, protuberance on the loading block, and the motor's back end marked with the arrow are mated with each other.

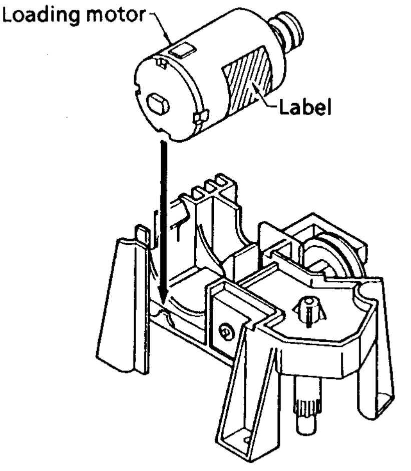
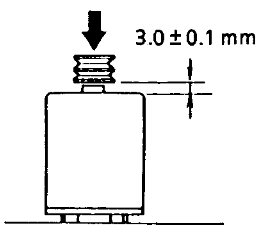

Loading motor
Label

Figure 1-70.



Note:
When press-fitting the loading motor pulley, keep the pressure less than 5 kg, and the gap between the motor and pulley should be 3.0 ± 0.1 mm.

Figure 1-71.

3. Set the loading block PWB and the cam switch in position.
4. Resolder the leads to the loading motor.
5. Finally place the loading block (See page 38).
6. Attach the loading belt.

REPLACEMENT OF MASTER CAM

- **Removal**

1. Remove the E ring ①.
2. Remove the pinch roller lever ②.
3. Pull out the master cam ③ upward.

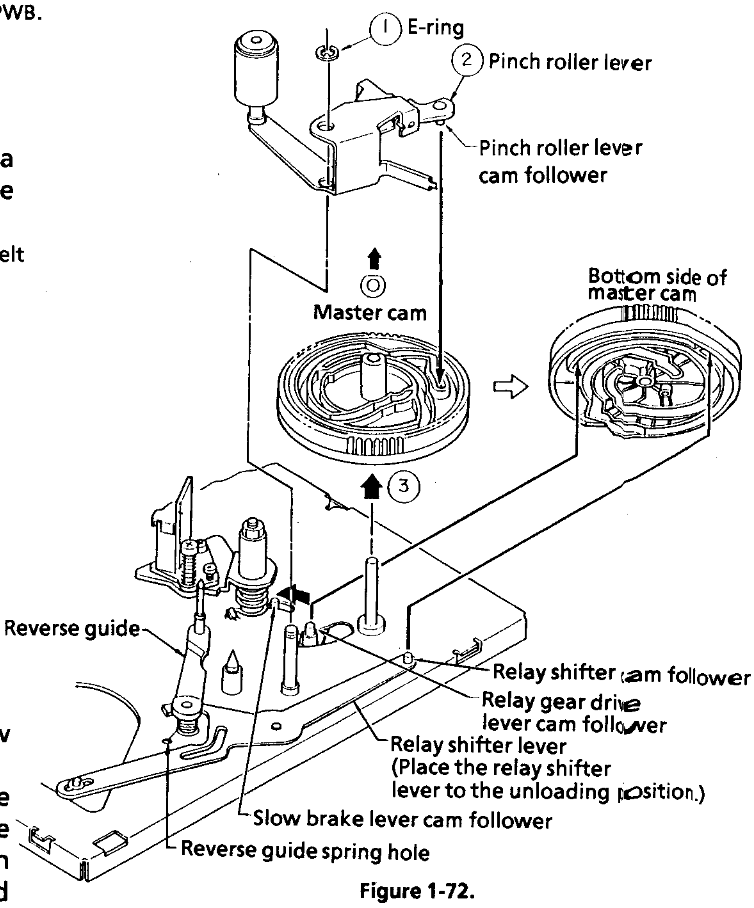

① E-ring
② Pinch roller lever
Pinch roller lever cam follower
◎
Master cam
Bottom side of master cam
③
Reverse guide
Relay shifter cam follower
Relay gear drive lever cam follower
Relay shifter lever
(Place the relay shifter lever to the unloading position.)
Slow brake lever cam follower
Reverse guide spring hole

Figure 1-72.

- **Reassembly**

1. Place the relay gear drive lever in the unloading state.
2. Place the relay shifter so that it is in contact with the reverse guide spring hole in the mechanism chassis. Release the slow brake lever with a finger to bring it away from the capstan (in the direction of arrow). Then place the master cam so that the D cut-off part of the master cam faces the direction of arrow.
3. Turn the master cam somewhat clockwise until the pinch roller lever's cam follower goes into the master cam's groove (marked with arrow). Mount the pinch roller lever and then attach the E ring.
4. Rotate the master cam by hand to make sure all the four levers (relay gear drive lever, pinch roller lever and relay shifter lever) are in the cam grooves in place.
5. Mount the loading block. (See page 38.)

Notes:

1. Be careful not to scratch the teeth and grooves of the master cam.
2. After installation of the master cam, be sure to rotate the master cam by hand before installing the loading block. If the levers are in wrong position, the master cam and the levers may get damaged when the motor stares.
3. Apply specified grease to the master cam's grooves and teeth.

REPLACEMENT OF UPPER DRUM

Note:

The gap between the lower drum and the upper drum is very accurate, in the order of microns, and care should be paid to their replacement. Even a slight amount of foreign material will affect the accuracy of their reassembly.

- **Replacement (Follow the order of the indicated numbers.)**

Notes:

1. Avoid touching the drum surface with bare hands.
2. Pull out the upper drum with care so that it may not be tilted, and replace it with the upper drum replacing jig using care not to damage the disk circumference.
3. Do not hit the screws when tightening them.

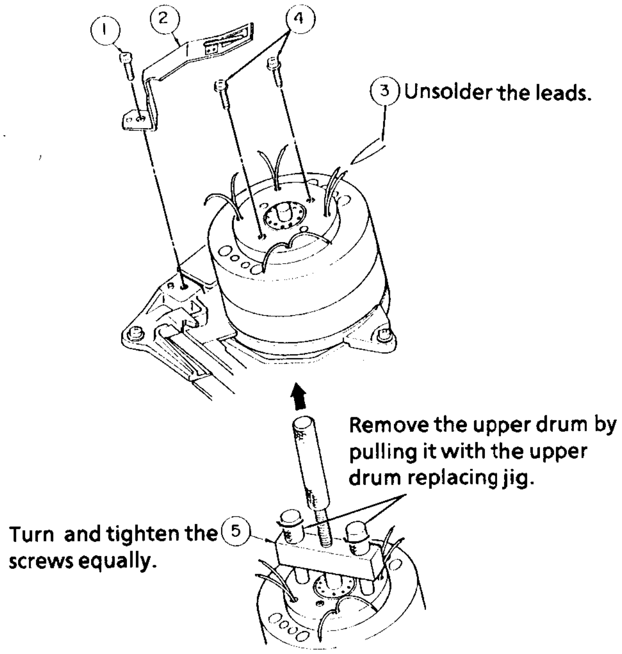

①
②
④
③ Unsolder the leads.
Remove the upper drum by pulling it with the upper drum replacing jig.
Turn and tighten the ⑤ screws equally.

Figure 1-73.

- **Reassembly**

Notes:

1. Before setting the drum, check that there are no scratches or dust on the edge of the surface and circumference of the disk.
2. Before setting the drum, check that there are no scratches or dust on the internal surface and edge of the surface of the upper drum.
3. On assembling these parts, insert the upper drum onto the disk with care, so that the upper drum is not tilted.
4. When assembling these parts, do not allow dust or dirt come between the disk and the upper drum.
5. Do not use excessive force when driving in the screws.

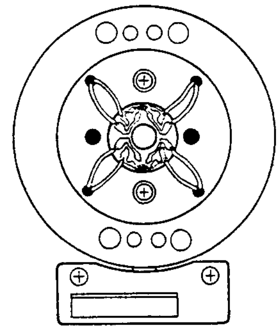


Figure 1-74.

1. Set the new drum.
2. Fasten the upper drum in place with the two screws.
3. Solder the leads.

   Note:

   Soldering should be performed quickly and carefully without touching adjacent patterns.
4. After replacement, be sure to check the tape drive train adjustment (see page 35) and the following electric adjustments.
   - Adjustment of the playback switching point.
   - Checking and adjustment of the X-position.
   - Adjustment of SP and EP slow tracking preset.

REPLACEMENT OF D.D. MOTOR

1. Put the unit in the cassette eject position.
2. Unplug the power cord.

- **Removal (Reverse the order in reassembly.)**

1. Remove the FFC ①.
2. Remove the two D.D. rotor assembly setscrews ②.
3. Pull out the D.D. rotor ass'y ③.
4. Remove the three D.D. stator setscrews ④.
5. Remove the D.D. stator assembly ⑤.

Notes:

1. When removing the D.D. rotor assembly or D.D. stator assembly, use care not to hit the loading relay gear.
2. Secure the D.D. rotor assembly so that the installation positioning holes in the D.D. rotor assembly and lower drum assembly match.
3. Be careful not to damage the upper drum or the video head.
4. Be sure that the hall device and the D.D. stator assembly are not damaged by the D.D. rotor assembly or other parts.
5. After installation, adjust the playback switching point.

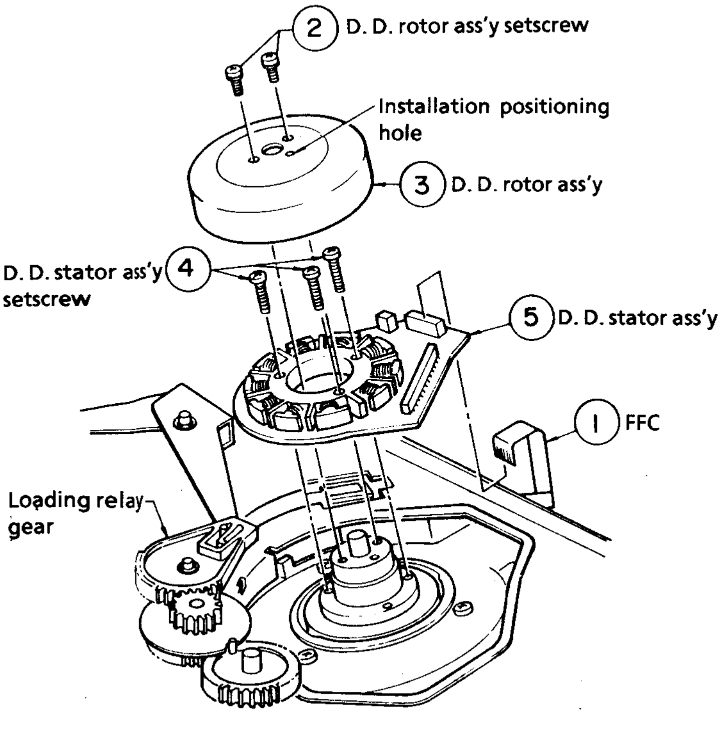

2 D. D. rotor ass'y setscrew
Installation positioning hole
3 D. D. rotor ass'y
D. D. stator ass'y setscrew 4
5 D. D. stator ass'y
1 FFC
Loading relay gear

Figure 1-75

REPLACING THE AHC (AUTOMATIC HEAD CLEANER)

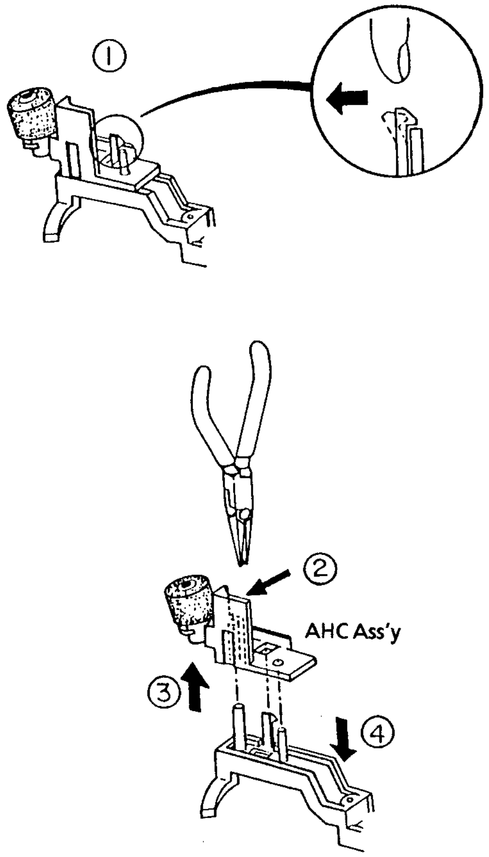


Figure 1-76

- **Removal**

1. Unhook part ① with a finger in the direction of arrow.
   Hold the rib (marked with an arrow) of the AHC ass'y ② with electrician's pliers or the like, and pull the ass'y upward in the direction of arrow ③.

Note:

To pull out the AHC ass'y, hold the AHC lever down.

- **Reassembly**

1. Push down the AHC ass'y in the direction of arrow ④. Make sure that the ass'y is secured in position by the hook of part ①.

Notes:

1. Be careful to keep the AHC ass'y out of contact with the drum.
2. Be careful to keep the cleaner section of the ass'y free of grease of contaminants.

ADJUSTMENT OF THE VCR ELECTRICAL CIRCUITRY

Notes:

- Before the adjustment:
  Electrical adjustments discussed here are often required after replacement of electronic components and mechanical parts such as video heads.
  Check that the mechanism and all electric components are in good working condition prior to the adjustments, otherwise adjustments can not be completed.
- Instruments required:
  - ◎Audio signal generator
  - ◎ Dual-trace oscilloscope
  - ◎ AC milli-voltmeter
  - ◎ Frequency counter
  - ◎ Blank video cassette tape
  - ◎ Screwdriver for adjustment
  - ◎Colour bar generator
  - ◎DC voltmeter
  - ◎ Alignment tape (VROCPSV)
  - ◎ Extension connector
    (QCNW-3778CEZZ: AB ~ AB)
    (QCNW-3780CEZZ: AL ~ AL)

■ SERVO CIRCUIT ADJUSTMENT

Adjustment of head switching point

Measuring instrument	Dual-trace oscilloscope
Mode	Playback
Cassette	Alignment tape (VROCPSV)
Test point	VIDEO OUT (pin (3) of EL connector) to CH1 TP2202 (Trigger) to CH2 (Located on the Y/C PWB)
Control	R7701 head switching point adjustment control
Specification	6.5 ± 0.5 H (lines)

1. Play the alignment tape.(VROCPSV.)
2. Short circuit test points TP8201 and TP8202 on the A/V Jack PWB or remove the cassette housing ass'y to set the auto tracking to center. (See Note below)
3. Connect a dual trace oscilloscope to the VIDEO OUT (pin (3) of EL connector) and TP2202. (Trigger the oscilloscope with the head switching pulse on TP2202.)
4. Adjust R7701 so that the leading edge of the head switching pulse is 6.5H (lines) ahead of the vertical sync as shown in Figure 2-1.

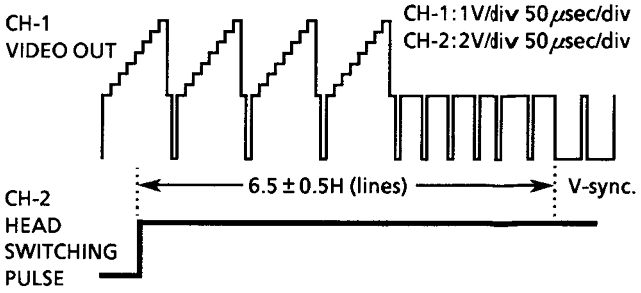


Figure 2-1.

Notes:

To make this adjustment, disable the AUTO TRACKING function.

The AUTO TRACKING function is disabled in the following cases.

(In the playback mode only.)

① When the cassette housing control ass'y is removed, press both tracking control buttons of the remote control unit at the same time to set the tracking in center.

② When test points TP8201 and TP8202 on the A/V jack PWB are short-circuited.

■ Test points layout of VCR Main Unit.

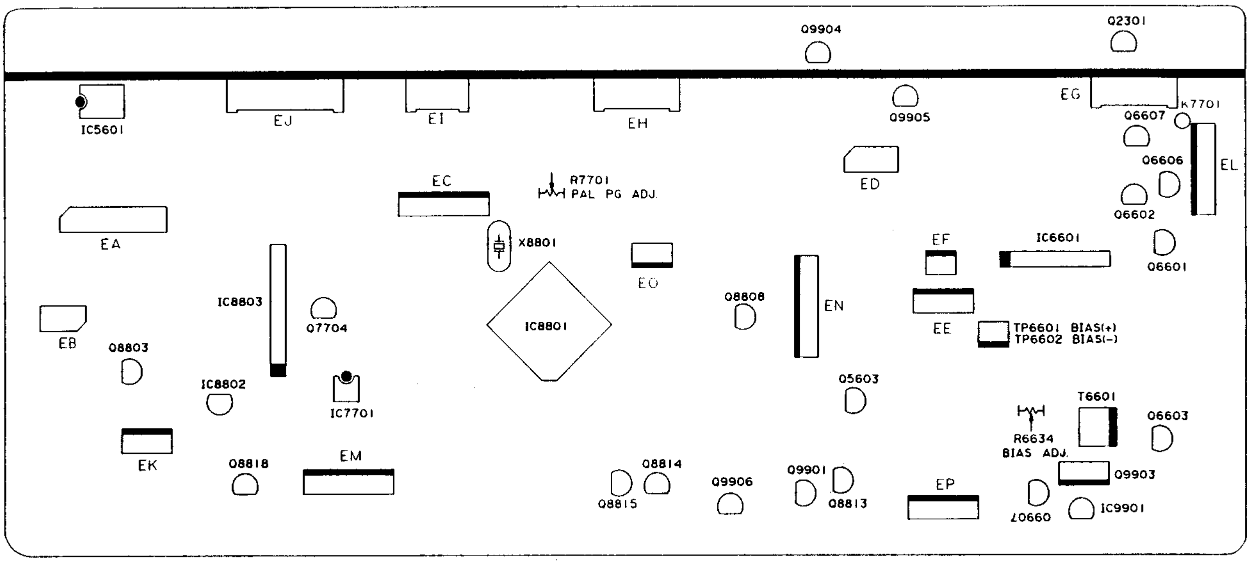

Q9904
Q2301
IC5601
EJ
EI
EH
Q9905
EG
K7701
Q6607
Q6606
EL
EC
R7701
PAL PG ADJ.
ED
Q6602
EA
X8801
EF
IC6601
Q6601
EO
IC8803
Q7704
IC8801
Q8808
EN
EE
TP6601 BIAS(+)
TP6602 BIAS(−)
EB
Q8803
IC8802
IC7701
Q5603
T6601
Q6603
R6634
BIAS ADJ.
EK
Q8818
EM
Q8814
Q9906
Q9901
Q9903
EP
Q8815
Q8813
Q9907
IC9901

Figure 2-2.

Adjustment of PAL System SP / LP slow tracking Preset

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape at SP and LP mode.
Input signal	PAL System Commercial broadcast or video signal.
Test point	Monitor screen
Adjusting point	Tracking control button (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the SP self-recorded tape in the PAL System slow mode.
2. Make the test points TP8201 and TP8202 short-circuited in the Jack PWB.
3. Be sure that the PB mode display (▸) disappears on the screen.
4. Remove the short-circuit.
5. Adjust the tracking control using the TRACKING buttons on the remote controller so that there is no noise on the screen.
6. Play back the LP self-recorded tape in the PAL System Slow mode.
7. Make the test points TP8201 and TP8202 short-circuited in the Jack PWB.
8. Be sure that the PB mode display (▸) disappears on the screen.
9. Remove the short-circuit.
10. Adjust the tracking control using the TRACKING buttons on the remote controller so that there is no noise on the screen.

Adjustment of NTSC System SP / EP slow tracking Preset

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape at SP and EP mode.
Input signal	NTSC system Commercial broadcast or video signal.
Test point	Monitor screen
Adjusting point	Tracking control buttons (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the SP self-recorded tape in the NTSC System slow mode.
2. Make the test points TP8201 and TP8202 short-circuited in the Jack PWB.
3. Be sure that the PB mode display (▸) disappears on the screen.
4. Remove the short-circuit.
5. Adjust the tracking control using the TRACKING buttons on the remote controller so that there is no noise on the screen.
6. Play back the EP self-recorded tape in the NTSC System Slow mode.
7. Make the test points TP8201 and TP8202 short-circuited in the Jack PWB.
8. Be sure that the PB mode display (▸) disappears on the screen.
9. Remove the short-circuit.
10. Adjust the tracking control using the TRACKING buttons on the remote controller so that there is no noise on the screen.

Adjustment of PAL System still picture vertical sync

Measuring instrument	Monitor TV
Mode	Still picture playback
Input signal	PAL self-recording tape
Test point	Monitor screen
Adjusting point	Tracking control buttons (+), (–)
Specification	No noise jitter

1. Play back the self-recorded tape in the PAL System still mode.
2. Using the TRACKING buttons on the remote controller, make adjustment so that jitter becomes minimum.
3. Now press the STOP button to stop the tape.

Adjustment of NTSC System still picture vertical sync

Measuring instrument	Monitor TV
Mode	Still picture playback
Input signal	NTSC self-recording tape
Test point	Monitor screen
Adjusting point	Tracking control buttons (+), (–)
Specification	No noise jitter

1. Play back the self-recorded tape in the NTSC System still mode.
2. Using the TRACKING buttons on the remote controller, make adjustment so that jitter becomes minimum.
3. Now press the STOP button to stop the tape.

■ Y/C CIRCUIT ADJUSTMENT

Adjustment of video E-E level

Measuring instrument	Oscilloscope
Mode	E-E or Record
Input signal	PAL colour bar (1.0Vp-p)
Test point	VIDEO OUT (pin (3) of EL connector)
Control	R2202 E-E level control
Specification	2.0 ± 0.2 Vp-p

1. Connect an oscilloscope to the VIDEO OUT (pin (3) of EL connector).
2. Feed a colour bar signal to the VIDEO IN jack and put the unit in AV input mode.
3. Adjust R2202 so that the signal amplitude is 2.0Vp-p as shown in Figure 2-3. (See Note below)

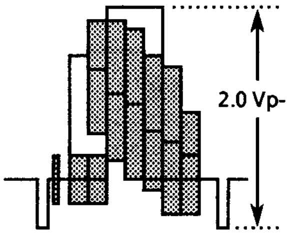


Figure 2-3.

Note:
After this adjustment, check the deviation of FM luminance signal. (Frequency and Deviation adjustment.)

Adjustment of VCO

Measuring instrument	DC Voltmeter
Mode	E-E or Record
Input signal	PAL colour bar (1.0 Vp-p)
Test point	TP5501(Signal), TP5502(GND)
Control	FL5501 VCO
Specification	2.25 ± 0.1V

1. Feed a colour bar signal to the VIDEO IN jack and put the unit in AV input mode.
2. Connect the DC voltmeter to test points TP5501(Sig.) and TP5502 (GND).
3. Adjust FL5501 so that the DC voltmeter reads 2.25 ± 0.1V.

■ Test points layout of Y/C Unit.

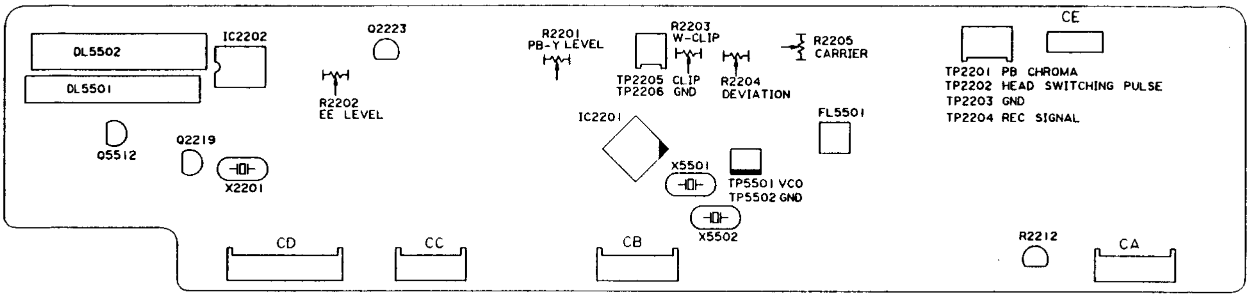

DL5502
DL5501
IC2202
Q2223
R2202
EE LEVEL
Q5512
Q2219
X2201
R2201
PB-Y LEVEL
R2203
W-CLIP
TP2205 CLIP
TP2206 GND
R2204
DEVIATION
R2205
CARRIER
IC2201
X5501
TP5501 VCO
TP5502 GND
X5502
FL5501
CE
TP2201 PB CHROMA
TP2202 HEAD SWITCHING PULSE
TP2203 GND
TP2204 REC SIGNAL
R2212
CD
CC
CB
CA

Figure 2-4.

Adjustment of white clip

Measuring instrument	Oscilloscope
Mode	E-E or Record
Input signal	PAL colour bar (1.0Vp-p)
Test point	TP2205(Signal), TP2206(GND)
Control	R2203 white clip control
Specification	190 ± 5% (See note below)

1. Connect the oscilloscope to test points TP2205(Sig.) and TP2206(GND).
2. Feed the colour bar signal to the VIDEO IN jack and put the unit in AV input mode.
3. Adjust R2203 so that the overshoot of the video signal is clipped at 190% as shown in Figure 2-5.

Note:
From sync tip to white peak, the level is 100%. The white clip level is 90% above the white level. (There is no dark clip adjustment.)

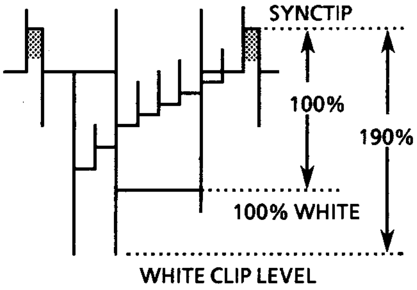

SYNCTIP
100%
190%
100% WHITE
WHITE CLIP LEVEL

Figure 2-5.

Adjustment of FM carrier frequency and deviation

Measuring instrument	Frequency counter Oscilloscope
Mode	Record/Playback
Input signal	PAL colour bar (1.0Vp-p)
Test point	TP2204 VIDEO OUT (pin (3) of EL connector)
Control	R2205 FM carrier control R2204 Deviation control
Specifications	3.8 ± 0.05MHz 2.0 ± 0.1Vp-p

1. Be sure that R2202 (E-E LEVEL) has been correctly adjusted.
2. Connect an oscilloscope to the VIDEO OUT (pin (3) of EL connector).
3. Connect a frequency counter to test points TP2204.
4. Put the unit in AV input mode. Do not feed any signal to the VIDEO IN jack. (Disconnect any cable from video input terminal.)
5. Under this condition, adjust R2205 so that the frequency counter reads 3.8MHz.
6. Feed the PAL standard colour bar signal to the VIDEO IN jack and adjust R2204 so that the frequency counter reads 4.3MHz.
7. Repeat step 5 thru 7 a few times.
8. Under this condition record the EIA colour bar on tape, rewind and playback.
9. Make sure that the amplitude of the playback colour bar signal is 2.0 ± 0.1 Vp-p as shown in Figure 2-6. If it is out of specified value, check the PLAYBACK LEVEL (R2201) and retry this adjustment.

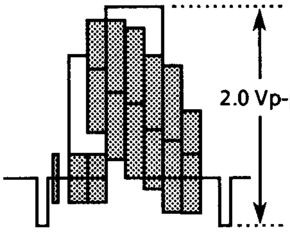


Figure 2-6.

Adjustment of playback level

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROCPSV)
Test point	VIDEO OUT (pin (3) of EL connector)
Control	R2201 playback level control
Specifications	2.0 ± 0.2 Vp-p

1. Connect an oscilloscope to the VIDEO OUT (pin (3) of EL connector).
2. Play the colour bar portion of the alignment tape and adjust R2201 so that the signal amplitude is 2.0Vp-p as shown in Figure 2-7.

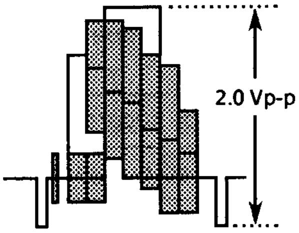


Figure 2-7.

■ AUDIO CIRCUIT

Checking of audio play-back level

Measuring instrument	AC milli-voltmeter
Mode	Playback
Input signal	Alignment tape.(VROCPSV) (1kHz level adjusting signal.)
Test point	AUDIO OUT (pin (7) of EL connector)
Specification	-9 ± 2dBs (0.6~1.0Vp-p)

1. Playback the Alignment tape. (VROCPSV 1kHz level adjusting signal)
2. Connect an AC milli-voltmeter to the AUDIO OUT (pin (7) of EL connector).
3. Make sure that the output level is -9 ± 2dBs.

Checking of audio record level

Measuring instrument	AC milli-voltmeter or Oscilloscope
Mode	Record/Playback
Input signal	1kHz, -8dBs (0.87Vp-p)
Test point	AUDIO OUT (pin (7) of EL connector)
Specification	-8 ± 2dBs (0.7~1.1Vp-p)

1. Connect an AC milli-voltmeter to the AUDIO OUT (pin (7) of EL connector).
2. Feed the audio signal shown in table to the AUDIO IN jack.
3. Make the self-recording and playback of the signal.
4. Make sure that the AUDIO OUT level is as specified. If it is out of specified value, verify the bias current (ADJUSTMENT OF AUDIO BIAS CURRENT below).

Adjustment of audio bias current

Measuring instrument	AC milli-voltmeter or Oscilloscope
Mode	Record
Input signal	Not required
Test point	TP6601(+) ~ TP6602(-)
Control	R6634
Specification	2.6 ± 0.1mVrms (7.6 ± 0.3mVp-p)

1. Connect an AC milli-voltmeter to test points TP6601(+) and TP6602(-).
(Use TP6602 for ground lead.)
2. Set the unit in recording mode.
3. Adjust R6634 so that the signal amplitude is 2.6mVrms.

Checking of erase voltage and oscillation frequency

Measuring instrument	Oscilloscope
Mode	Record
Test point	Full erase head
Control	T6601
Specification	70 ± 5kHz, 40Vp-p or greater

1. Put the unit in record mode.
2. Connect an oscilloscope across the full erase head.
3. Make sure the erase voltage across the full erase head is approx. 40Vp-p or more and frequency is 70 ± 5kHz.

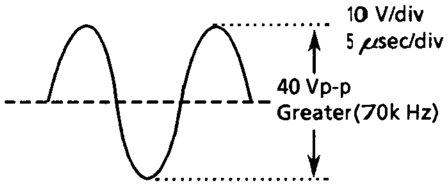


Figure 2-8.

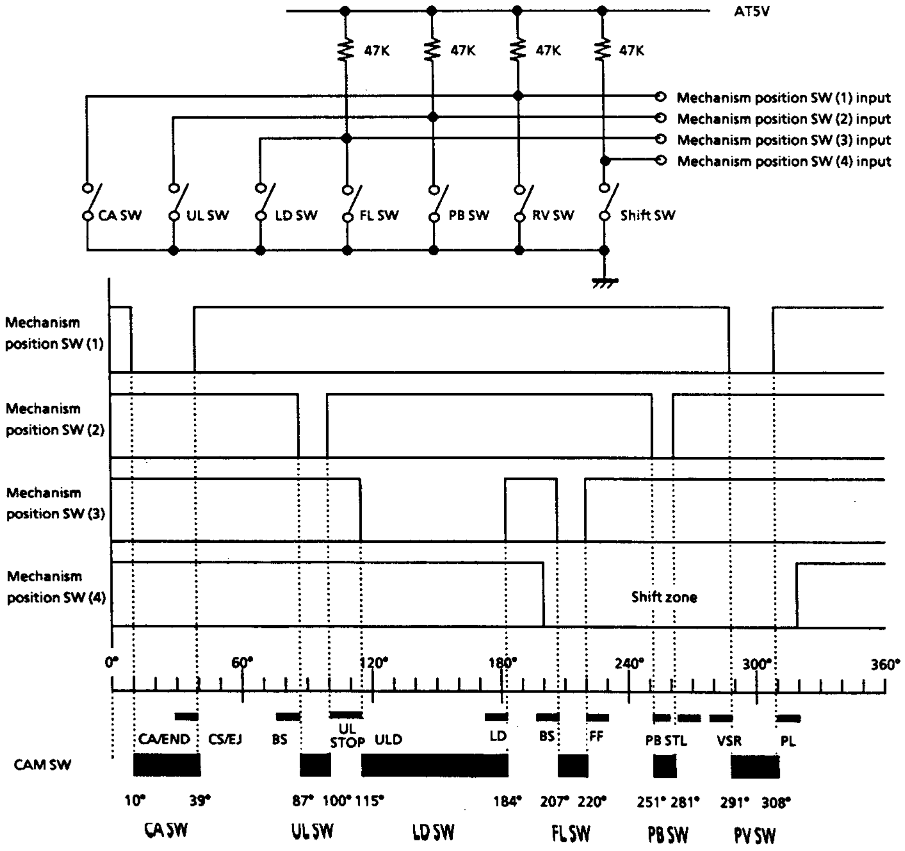
FLOW CHART AND TROUBLESHOOTING OF VCR SECTION

MECHANISM OPERATION FLOWCHART

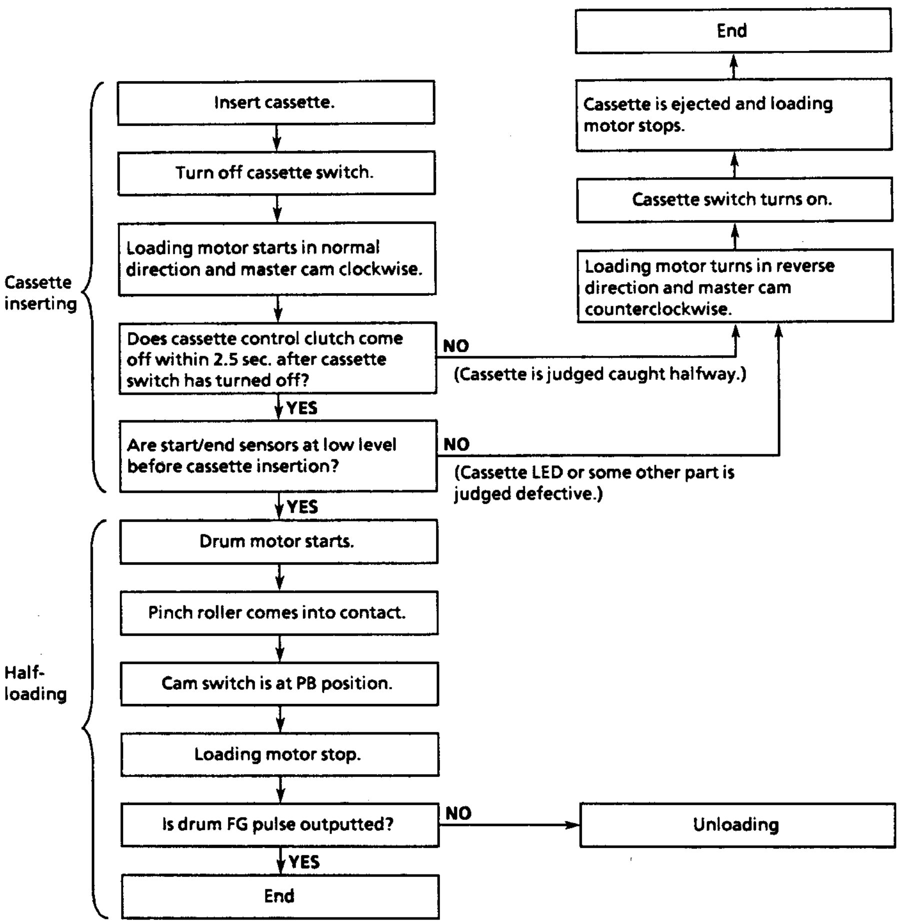
* This flowchart describes the outline of the mechanism's operation, but does not give its details.

* Function of cam switch bit reading.
The on/off of cam switch is cam position switch (1~4) input signals in conditions as shown in below.

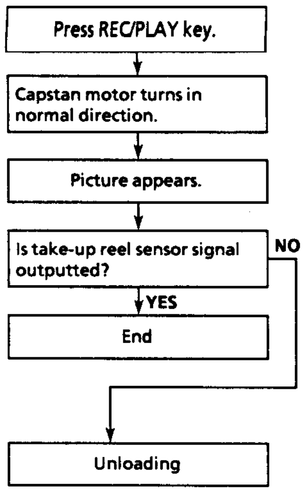
	CA SW 'ON'	UL SW 'ON'	LD SW 'ON'	FL SW 'ON'	PB SW 'ON'	RV SW 'ON'	ALL SW 'OFF'
Mechanism position SW (1) input	L	H	H	H	H	L	H
Mechanism position SW (2) input	H	L	H	H	L	H	H
Mechanism position SW (3) input	H	H	L	L	H	H	H
Mechanism position SW (4) input	H	H	H	L	L	L	H


AT5V
47K
47K
47K
47K
Mechanism position SW (1) input
Mechanism position SW (2) input
Mechanism position SW (3) input
Mechanism position SW (4) input
CA SW
UL SW
LD SW
FL SW
PB SW
RV SW
Shift SW
Mechanism position SW (1)
Mechanism position SW (2)
Mechanism position SW (3)
Mechanism position SW (4)
Shift zone
0°
60°
120°
180°
240°
300°
360°
CA/END
CS/EJ
BS
UL STOP
ULD
LD
BS
FF
PB STL
VSR
PL
CAM SW
10°
39°
87°
100°
115°
184°
207°
220°
251°
281°
291°
308°
CA SW
UL SW
LD SW
FL SW
PB SW
PV SW

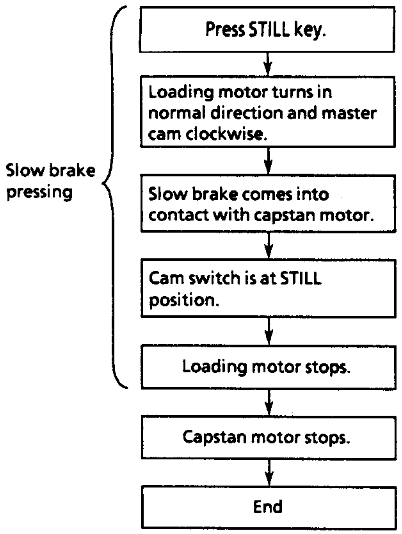
CASSETTE INSERTION → STOP


Cassette inserting
Insert cassette.
Turn off cassette switch.
Loading motor starts in normal direction and master cam clockwise.
Does cassette control clutch come off within 2.5 sec. after cassette switch has turned off?
YES
NO
(Cassette is judged caught halfway.)
Are start/end sensors at low level before cassette insertion?
YES
NO
(Cassette LED or some other part is judged defective.)
Loading motor turns in reverse direction and master cam counterclockwise.
Cassette switch turns on.
Cassette is ejected and loading motor stops.
End
Half-loading
Drum motor starts.
Pinch roller comes into contact.
Cam switch is at PB position.
Loading motor stop.
Is drum FG pulse outputted?
NO
Unloading
YES
End

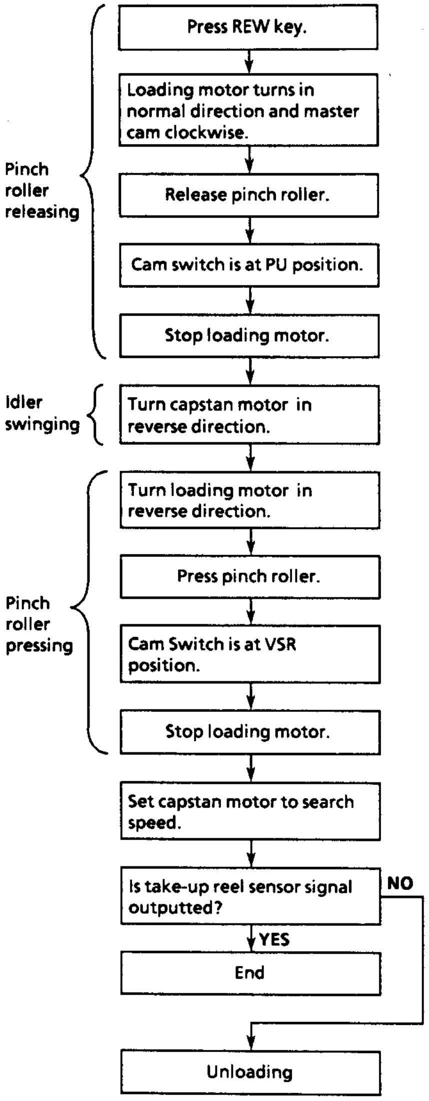
STOP → REC/PLAY


Press REC/PLAY key.
Capstan motor turns in normal direction.
Picture appears.
Is take-up reel sensor signal outputted?
NO
YES
End
Unloading

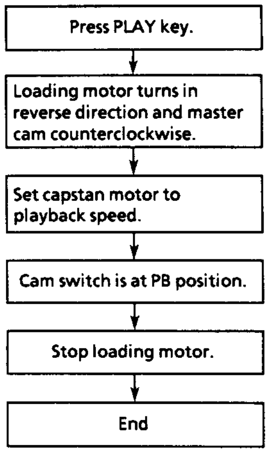
PLAY → STILL


Slow brake pressing
Press STILL key.
Loading motor turns in normal direction and master cam clockwise.
Slow brake comes into contact with capstan motor.
Cam switch is at STILL position.
Loading motor stops.
Capstan motor stops.
End

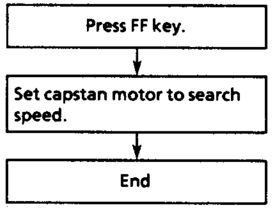
PLAY → VSR


Pinch roller releasing
Press REW key.
Loading motor turns in normal direction and master cam clockwise.
Release pinch roller.
Cam switch is at PU position.
Stop loading motor.
Idler swinging
Turn capstan motor in reverse direction.
Pinch roller pressing
Turn loading motor in reverse direction.
Press pinch roller.
Cam Switch is at VSR position.
Stop loading motor.
Set capstan motor to search speed.
Is take-up reel sensor signal outputted?
NO
YES
End
Unloading

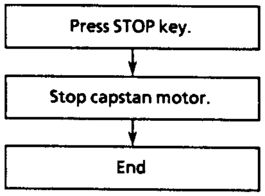
VSR → PLAY


Press PLAY key.
Loading motor turns in reverse direction and master cam counterclockwise.
Set capstan motor to playback speed.
Cam switch is at PB position.
Stop loading motor.
End

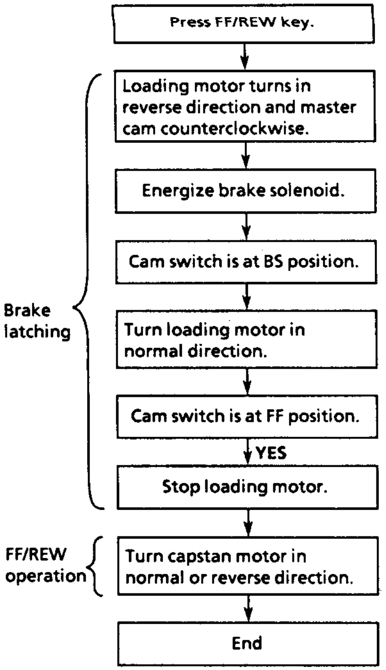
PLAY → VSF


Press FF key.
Set capstan motor to search speed.
End

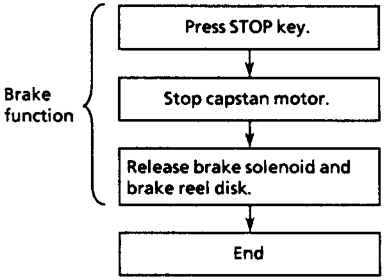
REC/PLAY → STOP


Press STOP key.
Stop capstan motor.
End

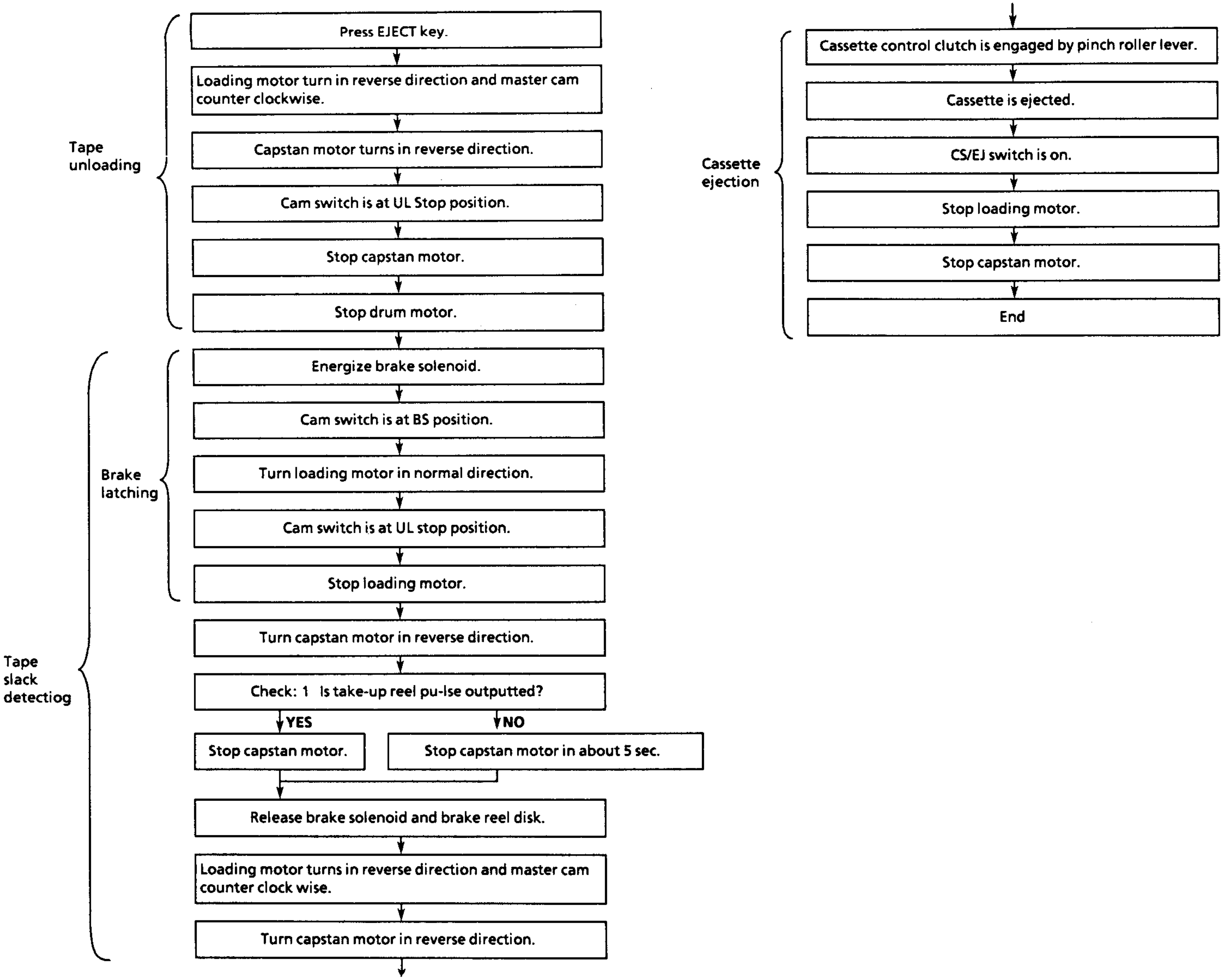
STOP → FF/REW


Press FF/REW key.
Loading motor turns in reverse direction and master cam counterclockwise.
Energize brake solenoid.
Cam switch is at BS position.
Turn loading motor in normal direction.
Cam switch is at FF position.
YES
Stop loading motor.
Brake latching
Turn capstan motor in normal or reverse direction.
FF/REW operation
End

FF/REW → STOP

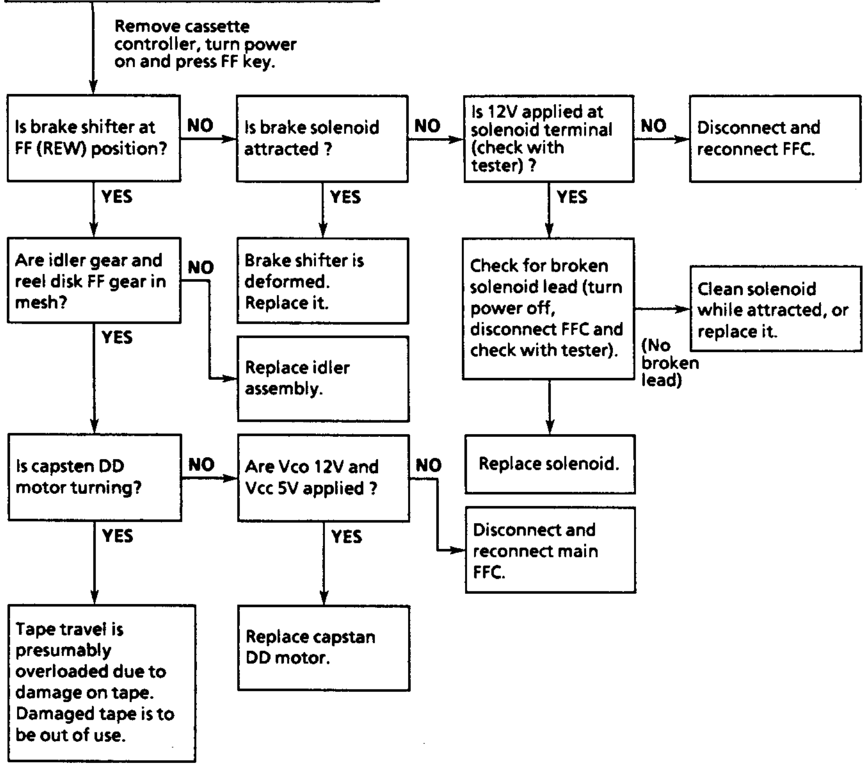

Press STOP key.
Stop capstan motor.
Release brake solenoid and brake reel disk.
Brake function
End

STOP → CASSETTE EJECT

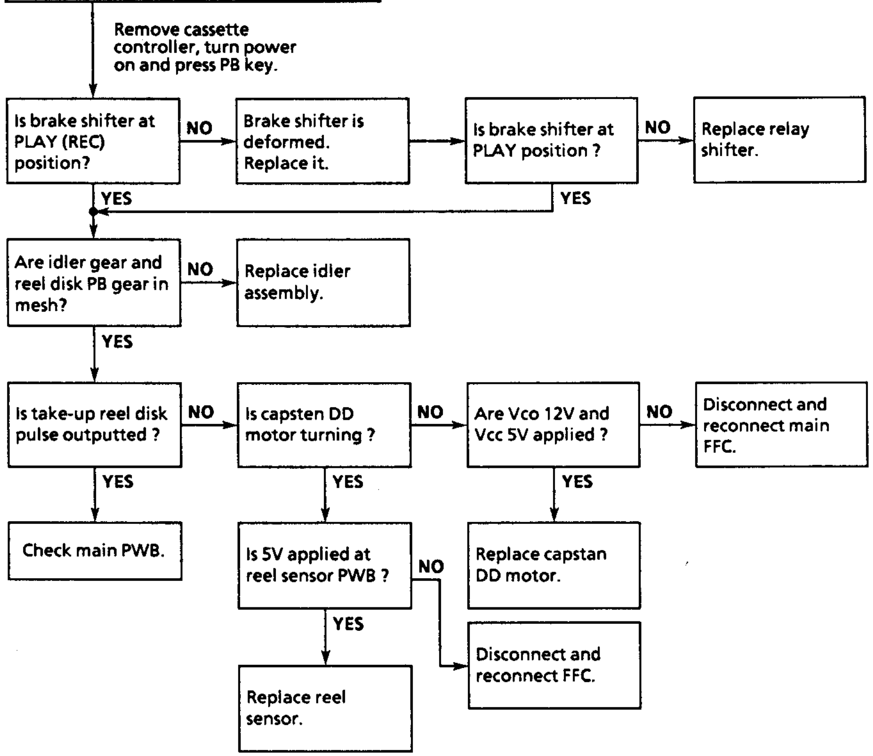

Press EJECT key.
Loading motor turn in reverse direction and master cam counter clockwise.
Capstan motor turns in reverse direction.
Cam switch is at UL Stop position.
Stop capstan motor.
Stop drum motor.
Tape unloading
Energize brake solenoid.
Cam switch is at BS position.
Turn loading motor in normal direction.
Cam switch is at UL stop position.
Stop loading motor.
Brake latching
Turn capstan motor in reverse direction.
Check: 1 Is take-up reel pu-lse outputted?
YES
NO
Stop capstan motor.
Stop capstan motor in about 5 sec.
Release brake solenoid and brake reel disk.
Loading motor turns in reverse direction and master cam counter clock wise.
Turn capstan motor in reverse direction.
Tape slack detectiog
Cassette control clutch is engaged by pinch roller lever.
Cassette is ejected.
CS/EJ switch is on.
Stop loading motor.
Stop capstan motor.
End
Cassette ejection

MECHANISM TROUBLESHOOTING

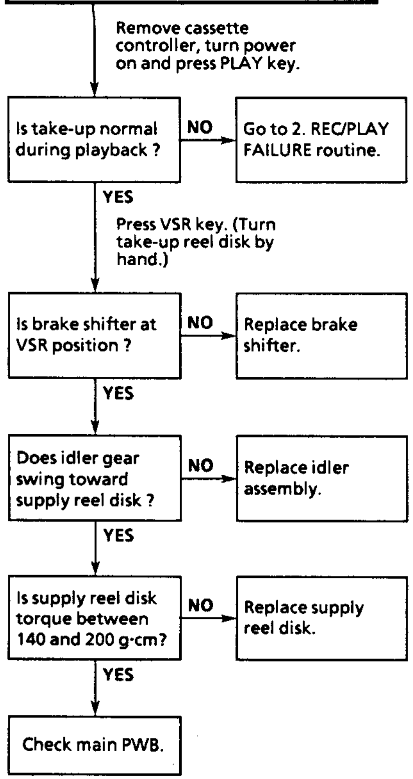
1. FF/REW FAILURE (NO TAPE WINDING)


Remove cassette controller, turn power on and press FF key.
Is brake shifter at FF (REW) position?
NO
Is brake solenoid attracted ?
NO
Is 12V applied at solenoid terminal (check with tester) ?
NO
Disconnect and reconnect FFC.
YES
YES
YES
Are idler gear and reel disk FF gear in mesh?
NO
Brake shifter is deformed. Replace it.
Check for broken solenoid lead (turn power off, disconnect FFC and check with tester).
Clean solenoid while attracted, or replace it.
(No broken lead)
YES
Replace idler assembly.
Is capsten DD motor turning?
NO
Are Vco 12V and Vcc 5V applied ?
NO
Replace solenoid.
Disconnect and reconnect main FFC.
YES
YES
Tape travel is presumably overloaded due to damage on tape. Damaged tape is to be out of use.
Replace capstan DD motor.

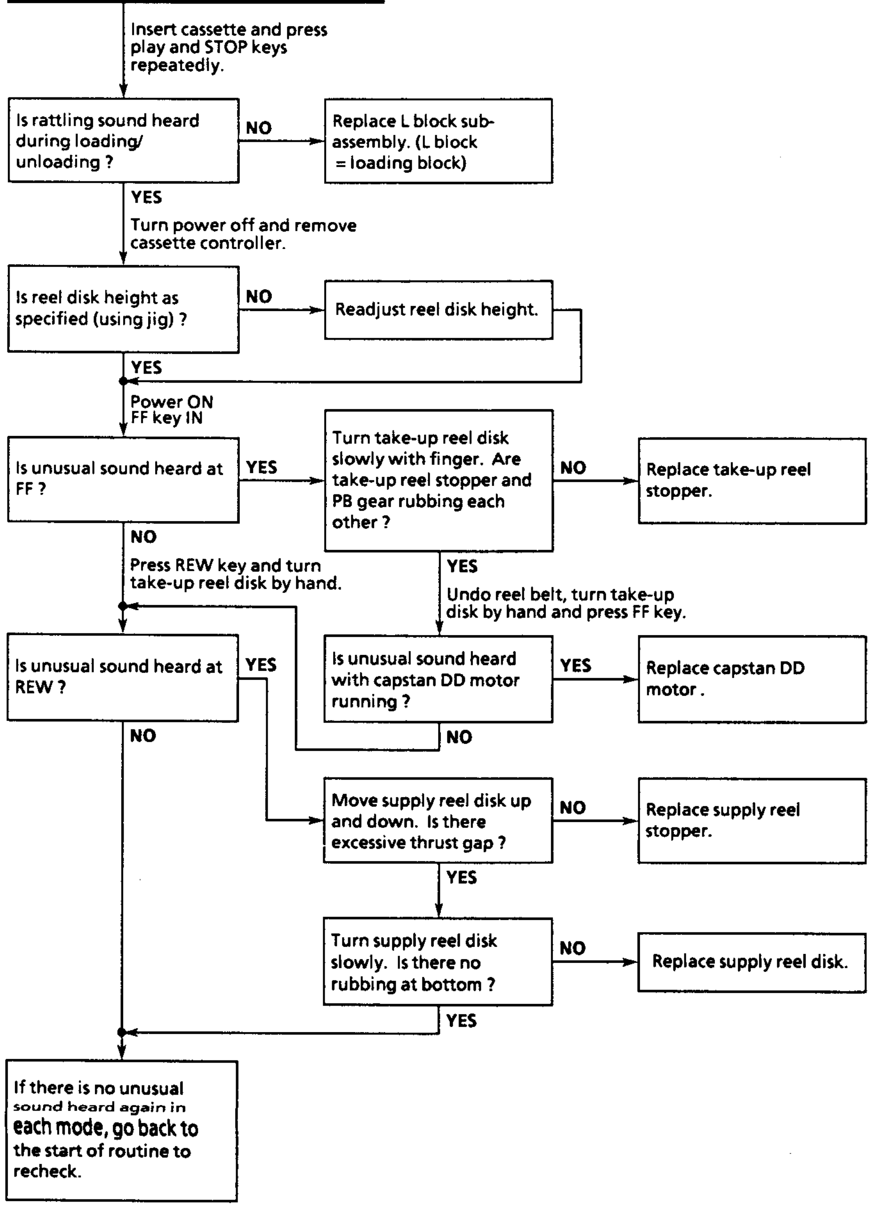
2. REC/PLAY FAILURE (MODE RELEASE)


Remove cassette controller, turn power on and press PB key.
Is brake shifter at PLAY (REC) position?
NO
Brake shifter is deformed. Replace it.
Is brake shifter at PLAY position ?
NO
Replace relay shifter.
YES
YES
Are idler gear and reel disk PB gear in mesh?
NO
Replace idler assembly.
YES
Is take-up reel disk pulse outputted ?
NO
Is capsten DD motor turning ?
NO
Are Vco 12V and Vcc 5V applied ?
NO
Disconnect and reconnect main FFC.
YES
YES
YES
Check main PWB.
Is 5V applied at reel sensor PWB ?
NO
Replace capstan DD motor.
YES
Disconnect and reconnect FFC.
Replace reel sensor.

3. WINDING FAILURE AT VSR


Remove cassette controller, turn power on and press PLAY key.
Is take-up normal during playback ?
NO
Go to 2. REC/PLAY FAILURE routine.
YES
Press VSR key. (Turn take-up reel disk by hand.)
Is brake shifter at VSR position ?
NO
Replace brake shifter.
YES
Does idler gear swing toward supply reel disk ?
NO
Replace idler assembly.
YES
Is supply reel disk torque between 140 and 200 g·cm?
NO
Replace supply reel disk.
YES
Check main PWB.

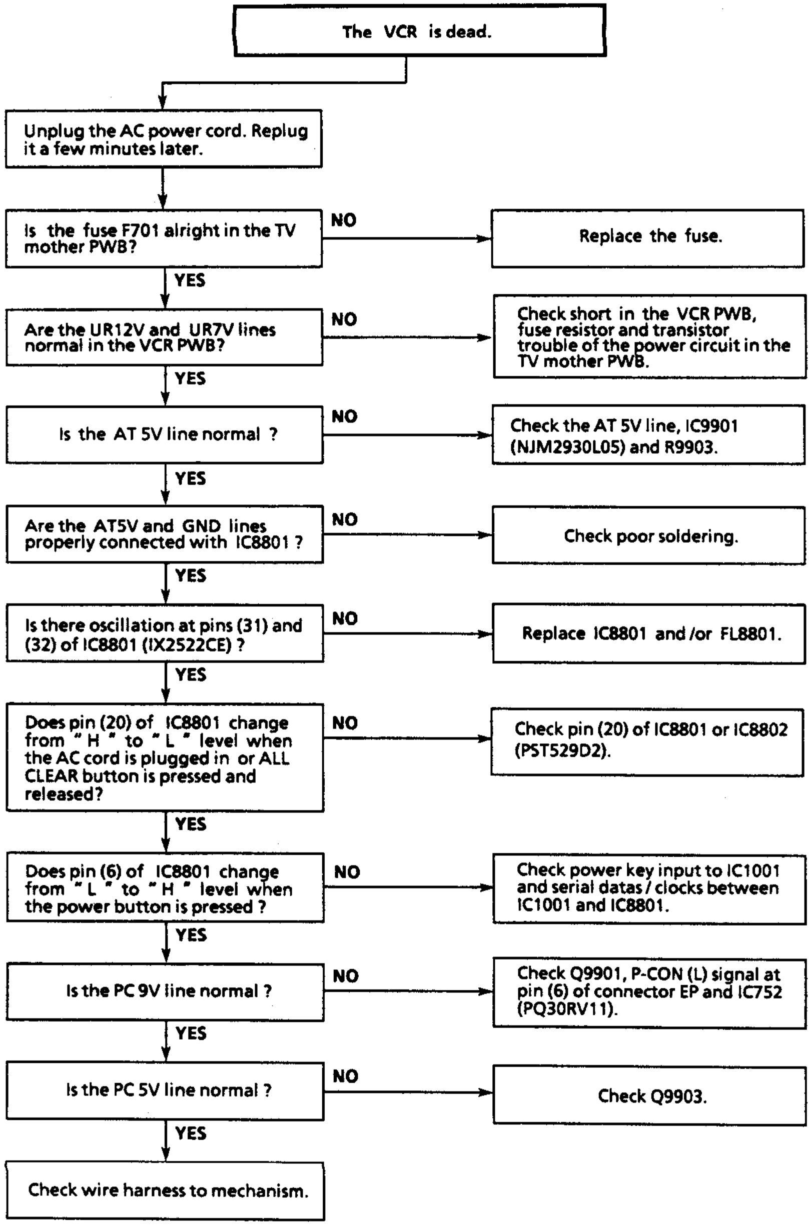
4. UNUSUAL SOUND IN EACH MODE


Insert cassette and press play and STOP keys repeatedly.
Is rattling sound heard during loading/ unloading ?
NO
Replace L block sub-assembly. (L block = loading block)
YES
Turn power off and remove cassette controller.
Is reel disk height as specified (using jig) ?
NO
Readjust reel disk height.
YES
Power ON
FF key IN
Is unusual sound heard at FF ?
YES
Turn take-up reel disk slowly with finger. Are take-up reel stopper and PB gear rubbing each other ?
NO
Replace take-up reel stopper.
YES
Undo reel belt, turn take-up disk by hand and press FF key.
Is unusual sound heard with capstan DD motor running ?
YES
Replace capstan DD motor .
NO
NO
Press REW key and turn take-up reel disk by hand.
Is unusual sound heard at REW ?
YES
Move supply reel disk up and down. Is there excessive thrust gap ?
NO
Replace supply reel stopper.
YES
Turn supply reel disk slowly. Is there no rubbing at bottom ?
NO
Replace supply reel disk.
YES
NO
If there is no unusual sound heard again in each mode, go back to the start of routine to recheck.

ELECTRICAL TROUBLESHOOTING

VCR POWER TROUBLESHOOTING

FLOW CHART NO. 1-1



The VCR is dead.

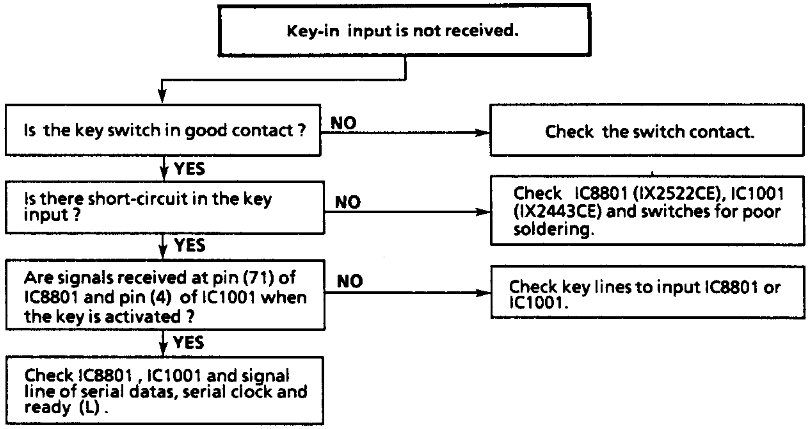
Unplug the AC power cord. Replug it a few minutes later.

Is the fuse F701 alright in the TV mother PWB?	NO	Replace the fuse.
YES		
Are the UR12V and UR7V lines normal in the VCR PWB?	NO	Check short in the VCR PWB, fuse resistor and transistor trouble of the power circuit in the TV mother PWB.
YES		
Is the AT 5V line normal ?	NO	Check the AT 5V line, IC9901 (NJM2930L05) and R9903.
YES		
Are the AT5V and GND lines properly connected with IC8801 ?	NO	Check poor soldering.
YES		
Is there oscillation at pins (31) and (32) of IC8801 (IX2522CE) ?	NO	Replace IC8801 and/or FL8801.
YES		
Does pin (20) of IC8801 change from " H " to " L " level when the AC cord is plugged in or ALL CLEAR button is pressed and released?	NO	Check pin (20) of IC8801 or IC8802 (PST529D2).
YES		
Does pin (6) of IC8801 change from " L " to " H " level when the power button is pressed ?	NO	Check power key input to IC1001 and serial datas / clocks between IC1001 and IC8801.
YES		
Is the PC 9V line normal ?	NO	Check Q9901, P-CON (L) signal at pin (6) of connector EP and IC752 (PQ30RV11).
YES		
Is the PC 5V line normal ?	NO	Check Q9903.
YES		

Check wire harness to mechanism.

KEY-IN TROUBLESHOOTING

FLOW CHART NO. 1-2



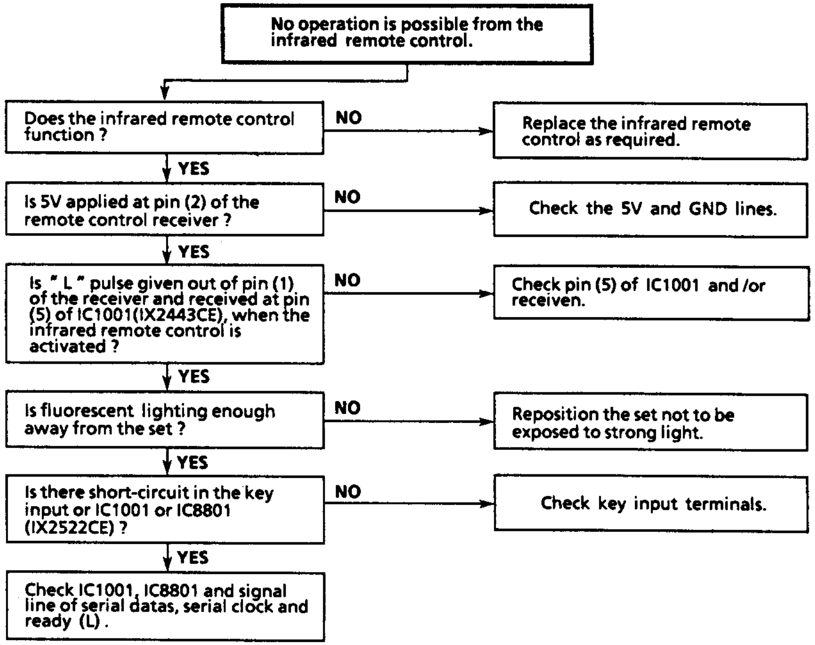
Key-in input is not received.

Is the key switch in good contact ?	NO	Check the switch contact.
YES		
Is there short-circuit in the key input ?	NO	Check IC8801 (IX2522CE), IC1001 (IX2443CE) and switches for poor soldering.
YES		
Are signals received at pin (71) of IC8801 and pin (4) of IC1001 when the key is activated ?	NO	Check key lines to input IC8801 or IC1001.
YES		

Check IC8801 , IC1001 and signal line of serial datas, serial clock and ready (L) .

INFRARED R/C TROUBLESHOOTING

FLOW CHART NO. 1-3



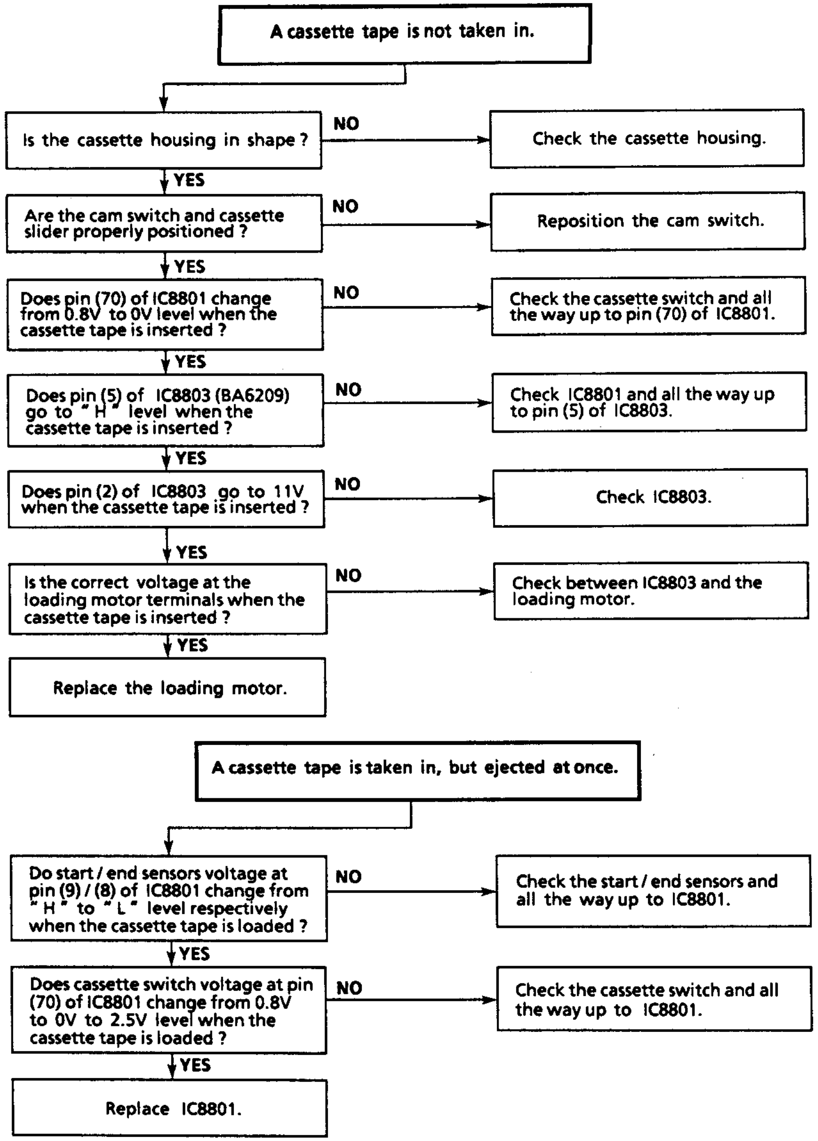
No operation is possible from the infrared remote control.

Does the infrared remote control function ?	NO	Replace the infrared remote control as required.
YES		
Is 5V applied at pin (2) of the remote control receiver ?	NO	Check the 5V and GND lines.
YES		
Is " L " pulse given out of pin (1) of the receiver and received at pin (5) of IC1001(IX2443CE), when the infrared remote control is activated ?	NO	Check pin (5) of IC1001 and /or receiven.
YES		
Is fluorescent lighting enough away from the set ?	NO	Reposition the set not to be exposed to strong light.
YES		
Is there short-circuit in the key input or IC1001 or IC8801 (IX2522CE) ?	NO	Check key input terminals.
YES		

Check IC1001, IC8801 and signal line of serial datas, serial clock and ready (L) .

CASSETTE CONTROL TROUBLESHOOTING

FLOW CHART NO. 1-4



A cassette tape is not taken in.

Is the cassette housing in shape ? — NO → Check the cassette housing.

YES

Are the cam switch and cassette slider properly positioned ? — NO → Reposition the cam switch.

YES

Does pin (70) of IC8801 change from 0.8V to 0V level when the cassette tape is inserted ? — NO → Check the cassette switch and all the way up to pin (70) of IC8801.

YES

Does pin (5) of IC8803 (BA6209) go to "H" level when the cassette tape is inserted ? — NO → Check IC8801 and all the way up to pin (5) of IC8803.

YES

Does pin (2) of IC8803 go to 11V when the cassette tape is inserted ? — NO → Check IC8803.

YES

Is the correct voltage at the loading motor terminals when the cassette tape is inserted ? — NO → Check between IC8803 and the loading motor.

YES

Replace the loading motor.

A cassette tape is taken in, but ejected at once.

Do start / end sensors voltage at pin (9) / (8) of IC8801 change from "H" to "L" level respectively when the cassette tape is loaded ? — NO → Check the start / end sensors and all the way up to IC8801.

YES

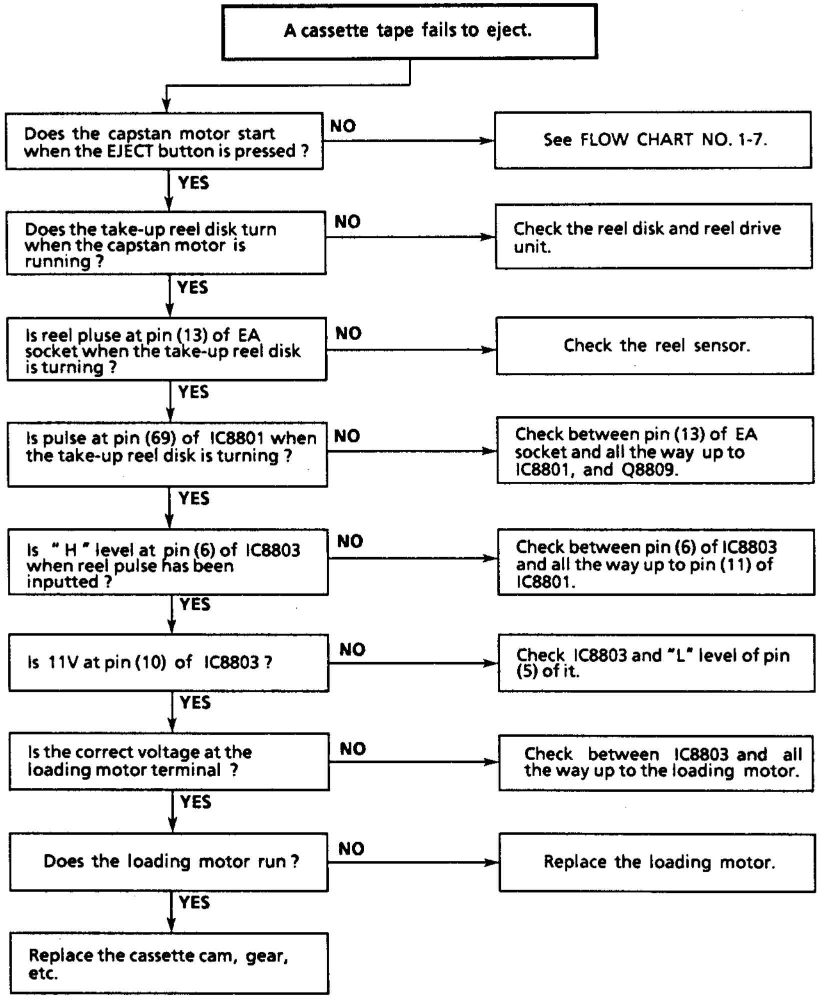
Does cassette switch voltage at pin (70) of IC8801 change from 0.8V to 0V to 2.5V level when the cassette tape is loaded ? — NO → Check the cassette switch and all the way up to IC8801.

YES

Replace IC8801.

LOADING MOTOR AND EJECT TROUBLESHOOTING

FLOW CHART NO. 1-5



A cassette tape fails to eject.

Does the capstan motor start when the EJECT button is pressed ? — NO → See FLOW CHART NO. 1-7.

YES

Does the take-up reel disk turn when the capstan motor is running ? — NO → Check the reel disk and reel drive unit.

YES

Is reel pluse at pin (13) of EA socket when the take-up reel disk is turning ? — NO → Check the reel sensor.

YES

Is pulse at pin (69) of IC8801 when the take-up reel disk is turning ? — NO → Check between pin (13) of EA socket and all the way up to IC8801, and Q8809.

YES

Is "H" level at pin (6) of IC8803 when reel pulse has been inputted ? — NO → Check between pin (6) of IC8803 and all the way up to pin (11) of IC8801.

YES

Is 11V at pin (10) of IC8803 ? — NO → Check IC8803 and "L" level of pin (5) of it.

YES

Is the correct voltage at the loading motor terminal ? — NO → Check between IC8803 and all the way up to the loading motor.

YES

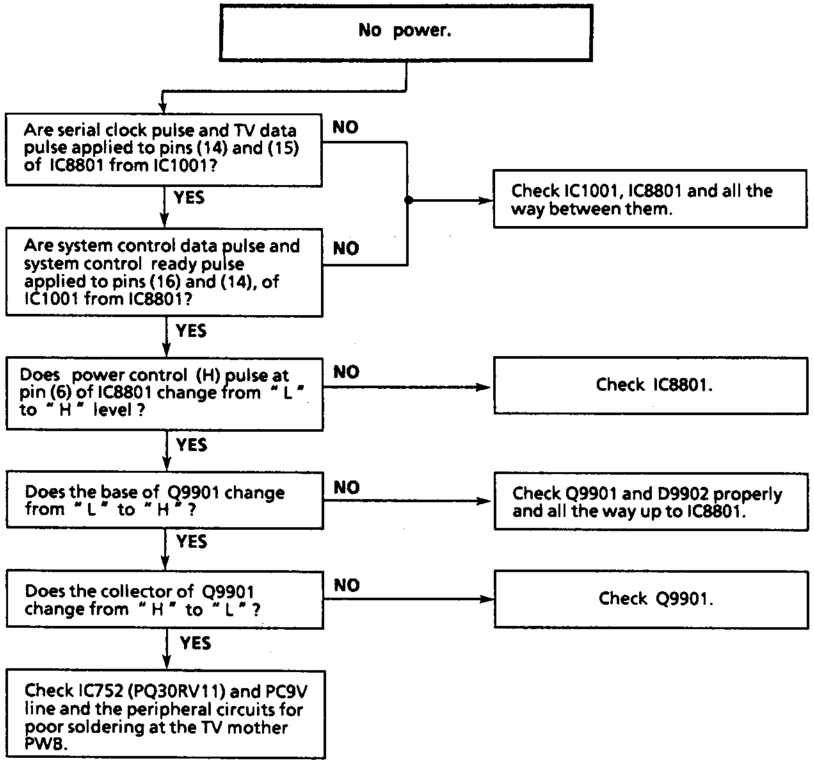
Does the loading motor run ? — NO → Replace the loading motor.

YES

Replace the cassette cam, gear, etc.

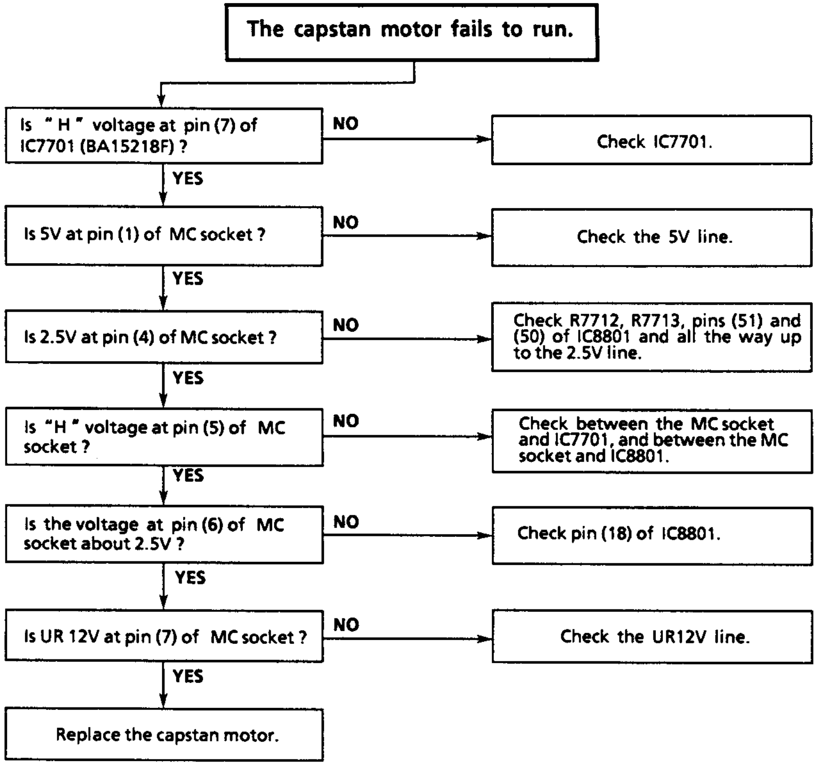
SYSTEM CONTROL TROUBLESHOOTING

FLOW CHART NO. 1-6


No power.
Are serial clock pulse and TV data pulse applied to pins (14) and (15) of IC8801 from IC1001?
NO
YES
Are system control data pulse and system control ready pulse applied to pins (16) and (14), of IC1001 from IC8801?
NO
Check IC1001, IC8801 and all the way between them.
YES
Does power control (H) pulse at pin (6) of IC8801 change from " L " to " H " level ?
NO
Check IC8801.
YES
Does the base of Q9901 change from " L " to " H " ?
NO
Check Q9901 and D9902 properly and all the way up to IC8801.
YES
Does the collector of Q9901 change from " H " to " L " ?
NO
Check Q9901.
YES
Check IC752 (PQ30RV11) and PC9V line and the peripheral circuits for poor soldering at the TV mother PWB.

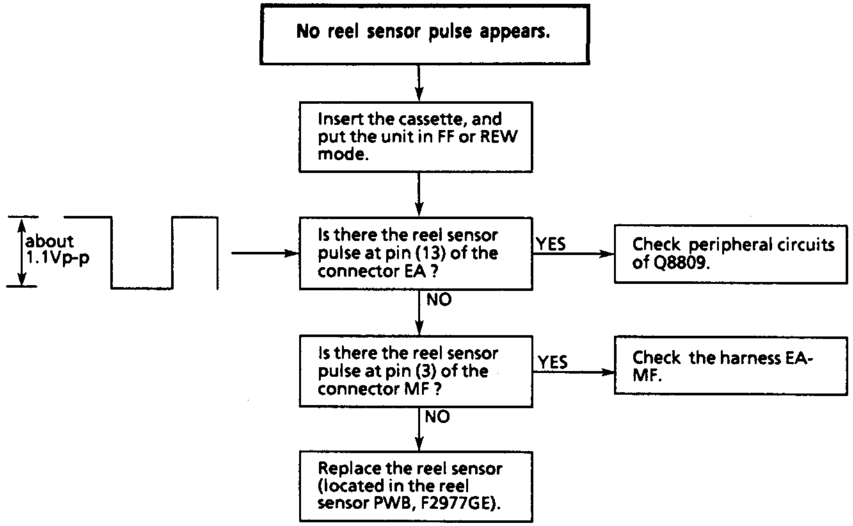
CAPSTAN MOTOR TROUBLESHOOTING

FLOW CHART NO. 1-7


The capstan motor fails to run.
Is " H " voltage at pin (7) of IC7701 (BA15218F) ?
NO
Check IC7701.
YES
Is 5V at pin (1) of MC socket ?
NO
Check the 5V line.
YES
Is 2.5V at pin (4) of MC socket ?
NO
Check R7712, R7713, pins (51) and (50) of IC8801 and all the way up to the 2.5V line.
YES
Is "H" voltage at pin (5) of MC socket ?
NO
Check between the MC socket and IC7701, and between the MC socket and IC8801.
YES
Is the voltage at pin (6) of MC socket about 2.5V ?
NO
Check pin (18) of IC8801.
YES
Is UR 12V at pin (7) of MC socket ?
NO
Check the UR12V line.
YES
Replace the capstan motor.

TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING

FLOW CHART NO. 1-8



No reel sensor pulse appears.

Insert the cassette, and put the unit in FF or REW mode.

Is there the reel sensor pulse at pin (13) of the connector EA ?

Check peripheral circuits of Q8809.

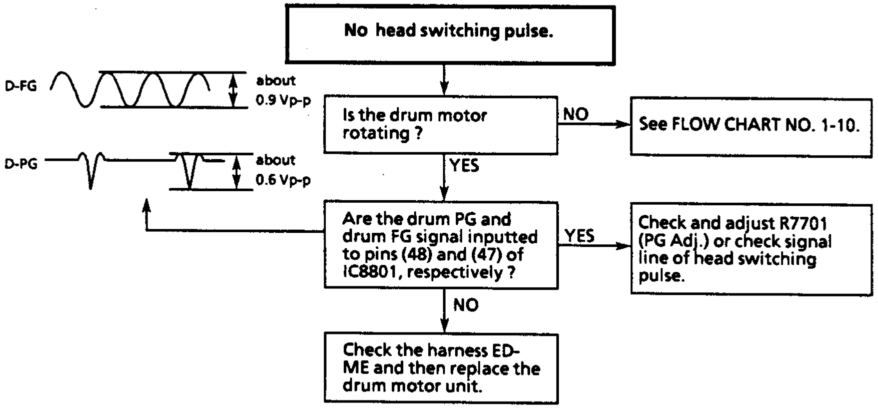
Is there the reel sensor pulse at pin (3) of the connector MF ?

Check the harness EA-MF.

Replace the reel sensor (located in the reel sensor PWB, F2977GE).

HEAD SWITCHING PULSE TROUBLESHOOTING

FLOW CHART NO. 1-9



No head switching pulse.

Is the drum motor rotating ?

See FLOW CHART NO. 1-10.

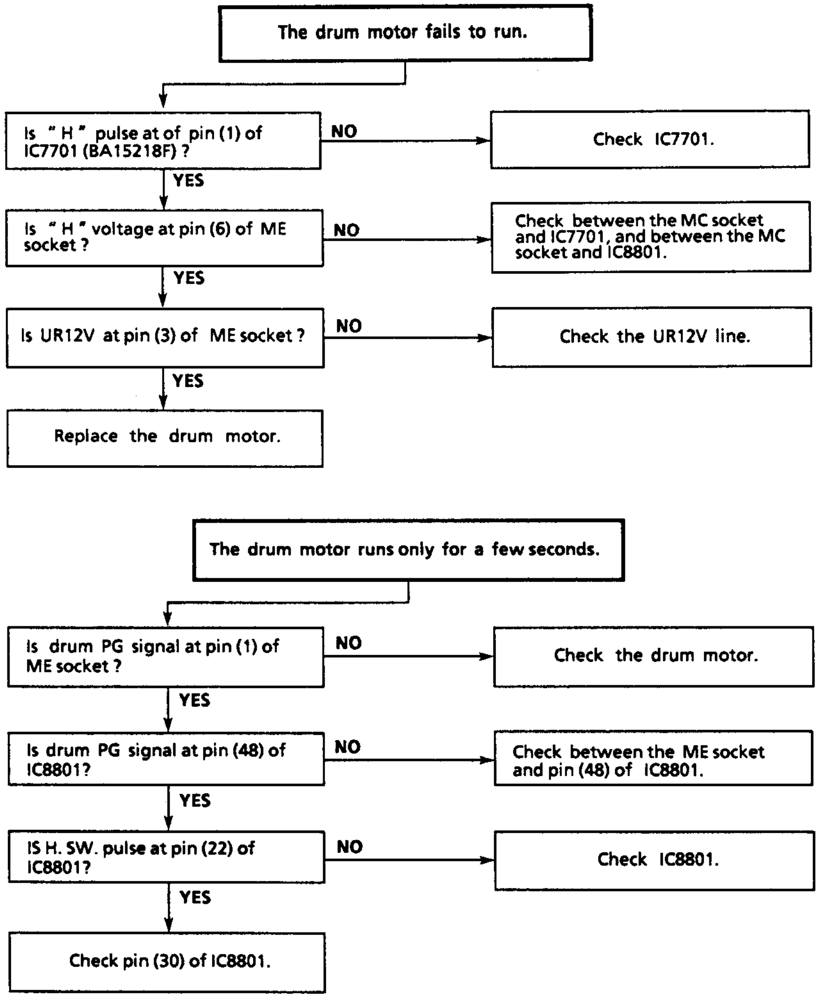
Are the drum PG and drum FG signal inputted to pins (48) and (47) of IC8801, respectively ?

Check and adjust R7701 (PG Adj.) or check signal line of head switching pulse.

Check the harness ED-ME and then replace the drum motor unit.

DRUM MOTOR TROUBLESHOOTING

FLOW CHART NO. 1-10



The drum motor fails to run.

Is " H " pulse at of pin (1) of IC7701 (BA15218F) ?

Check IC7701.

Is " H " voltage at pin (6) of ME socket ?

Check between the MC socket and IC7701, and between the MC socket and IC8801.

Is UR12V at pin (3) of ME socket ?

Check the UR12V line.

Replace the drum motor.

The drum motor runs only for a few seconds.

Is drum PG signal at pin (1) of ME socket ?

Check the drum motor.

Is drum PG signal at pin (48) of IC8801?

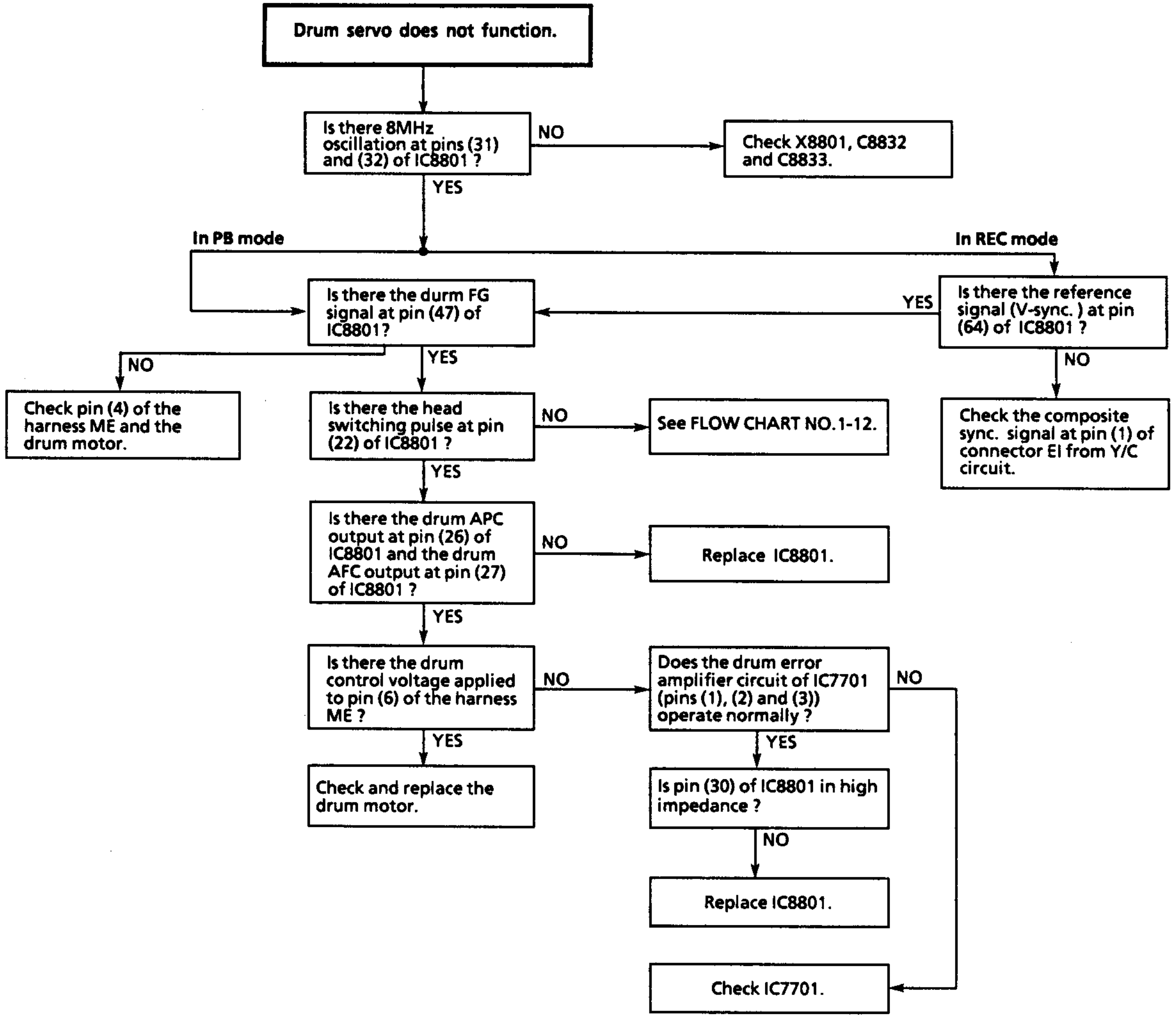
Check between the ME socket and pin (48) of IC8801.

IS H. SW. pulse at pin (22) of IC8801?

Check IC8801.

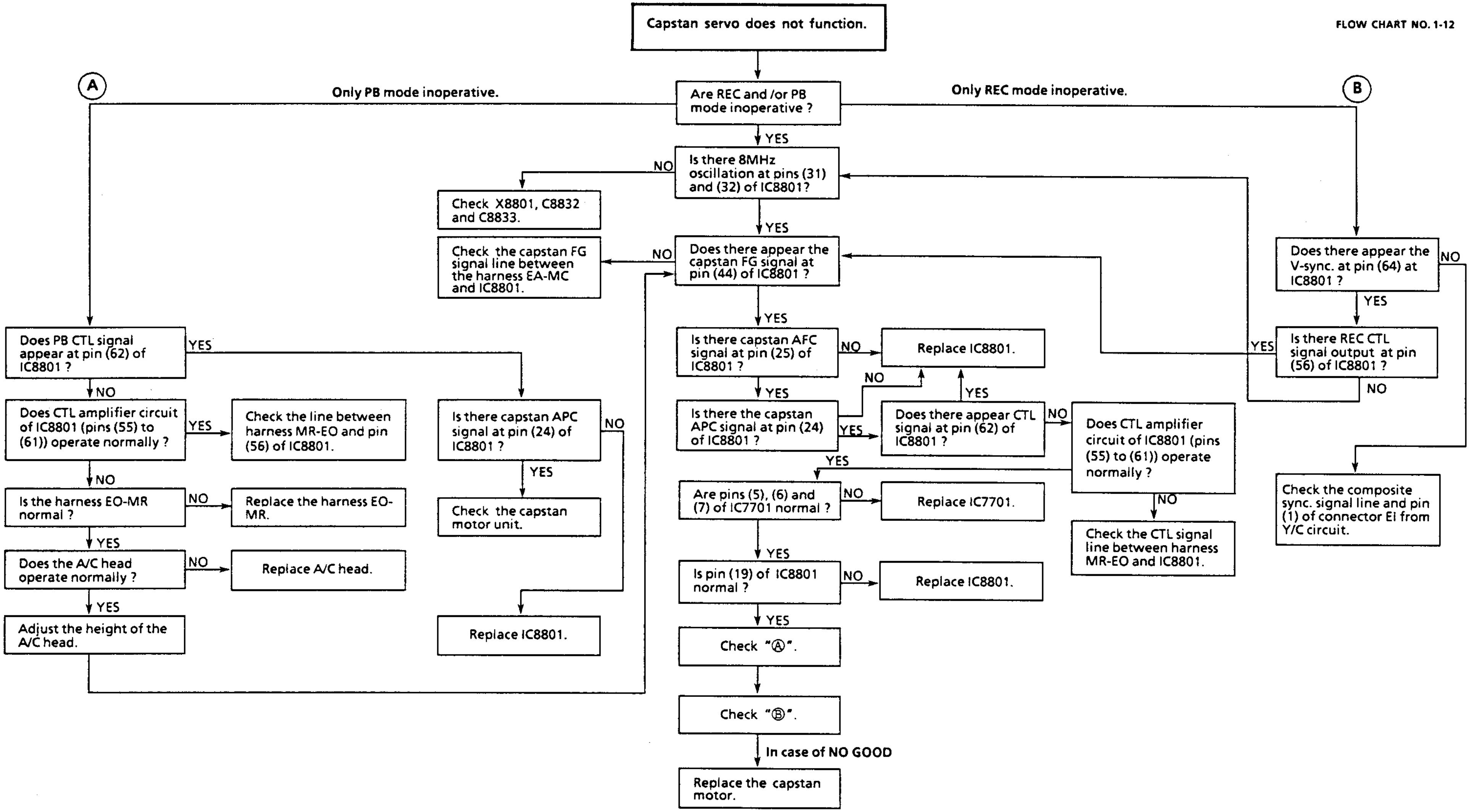
Check pin (30) of IC8801.

DRUM SERVO TROUBLESHOOTING


Drum servo does not function.
Is there 8MHz oscillation at pins (31) and (32) of IC8801 ?
NO
Check X8801, C8832 and C8833.
YES
In PB mode
In REC mode
Is there the durm FG signal at pin (47) of IC8801?
YES
Is there the reference signal (V-sync.) at pin (64) of IC8801 ?
NO
Check pin (4) of the harness ME and the drum motor.
YES
NO
Check the composite sync. signal at pin (1) of connector EI from Y/C circuit.
Is there the head switching pulse at pin (22) of IC8801 ?
NO
See FLOW CHART NO.1-12.
YES
Is there the drum APC output at pin (26) of IC8801 and the drum AFC output at pin (27) of IC8801 ?
NO
Replace IC8801.
YES
Is there the drum control voltage applied to pin (6) of the harness ME ?
NO
Does the drum error amplifier circuit of IC7701 (pins (1), (2) and (3)) operate normally ?
NO
YES
YES
Check and replace the drum motor.
Is pin (30) of IC8801 in high impedance ?
NO
Replace IC8801.
Check IC7701.

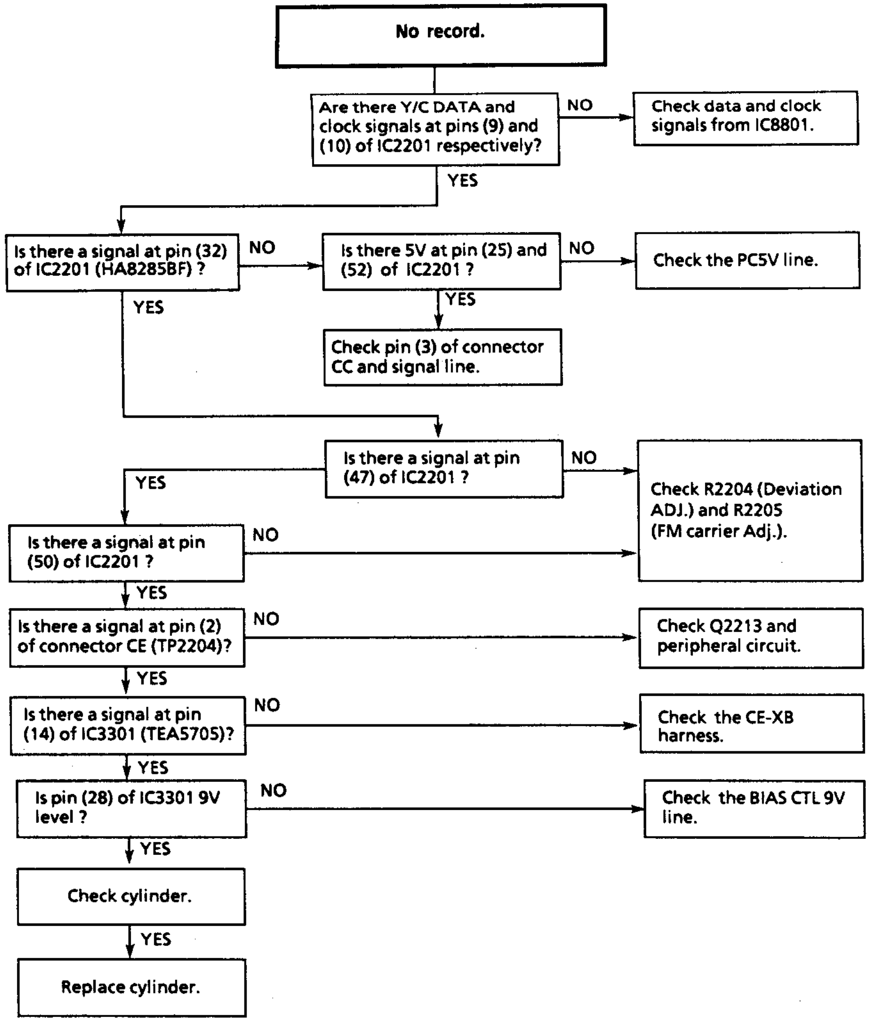
CAPSTAN SERVO TROUBLESHOOTING

FLOW CHART NO. 1-12


Capstan servo does not function.
Are REC and /or PB mode inoperative ?
Only PB mode inoperative.
Only REC mode inoperative.
A
B
YES
NO
Is there 8MHz oscillation at pins (31) and (32) of IC8801?
Check X8801, C8832 and C8833.
Does there appear the capstan FG signal at pin (44) of IC8801 ?
Check the capstan FG signal line between the harness EA-MC and IC8801.
Is there capstan AFC signal at pin (25) of IC8801 ?
Replace IC8801.
Is there the capstan APC signal at pin (24) of IC8801 ?
Does there appear CTL signal at pin (62) of IC8801 ?
Does CTL amplifier circuit of IC8801 (pins (55) to (61)) operate normally ?
Check the CTL signal line between harness MR-EO and IC8801.
Are pins (5), (6) and (7) of IC7701 normal ?
Replace IC7701.
Is pin (19) of IC8801 normal ?
Replace IC8801.
Check "Ⓐ".
Check "Ⓑ".
In case of NO GOOD
Replace the capstan motor.
Does PB CTL signal appear at pin (62) of IC8801 ?
Does CTL amplifier circuit of IC8801 (pins (55) to (61)) operate normally ?
Check the line between harness MR-EO and pin (56) of IC8801.
Is the harness EO-MR normal ?
Replace the harness EO-MR.
Does the A/C head operate normally ?
Replace A/C head.
Adjust the height of the A/C head.
Is there capstan APC signal at pin (24) of IC8801 ?
Check the capstan motor unit.
Replace IC8801.
Does there appear the V-sync. at pin (64) at IC8801 ?
Is there REC CTL signal output at pin (56) of IC8801 ?
Check the composite sync. signal line and pin (1) of connector EI from Y/C circuit.

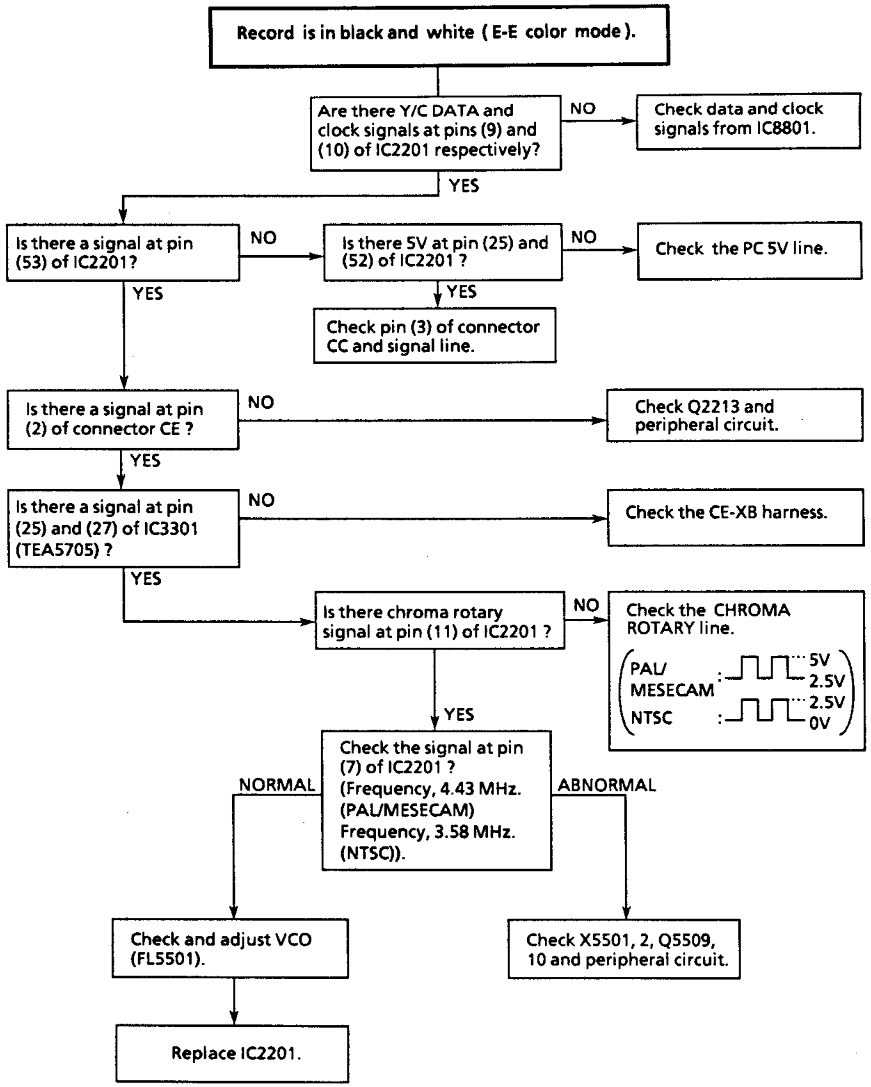
VCR RECORDING MODE (LUMINANCE)TROUBLESHOOTING

FLOW CHART NO. 1-13


No record.
Are there Y/C DATA and clock signals at pins (9) and (10) of IC2201 respectively?
NO
Check data and clock signals from IC8801.
YES
Is there a signal at pin (32) of IC2201 (HA8285BF) ?
NO
Is there 5V at pin (25) and (52) of IC2201 ?
NO
Check the PC5V line.
YES
Check pin (3) of connector CC and signal line.
YES
Is there a signal at pin (47) of IC2201 ?
NO
Check R2204 (Deviation ADJ.) and R2205 (FM carrier Adj.).
YES
Is there a signal at pin (50) of IC2201 ?
NO
YES
Is there a signal at pin (2) of connector CE (TP2204)?
NO
Check Q2213 and peripheral circuit.
YES
Is there a signal at pin (14) of IC3301 (TEA5705)?
NO
Check the CE-XB harness.
YES
Is pin (28) of IC3301 9V level ?
NO
Check the BIAS CTL 9V line.
YES
Check cylinder.
YES
Replace cylinder.

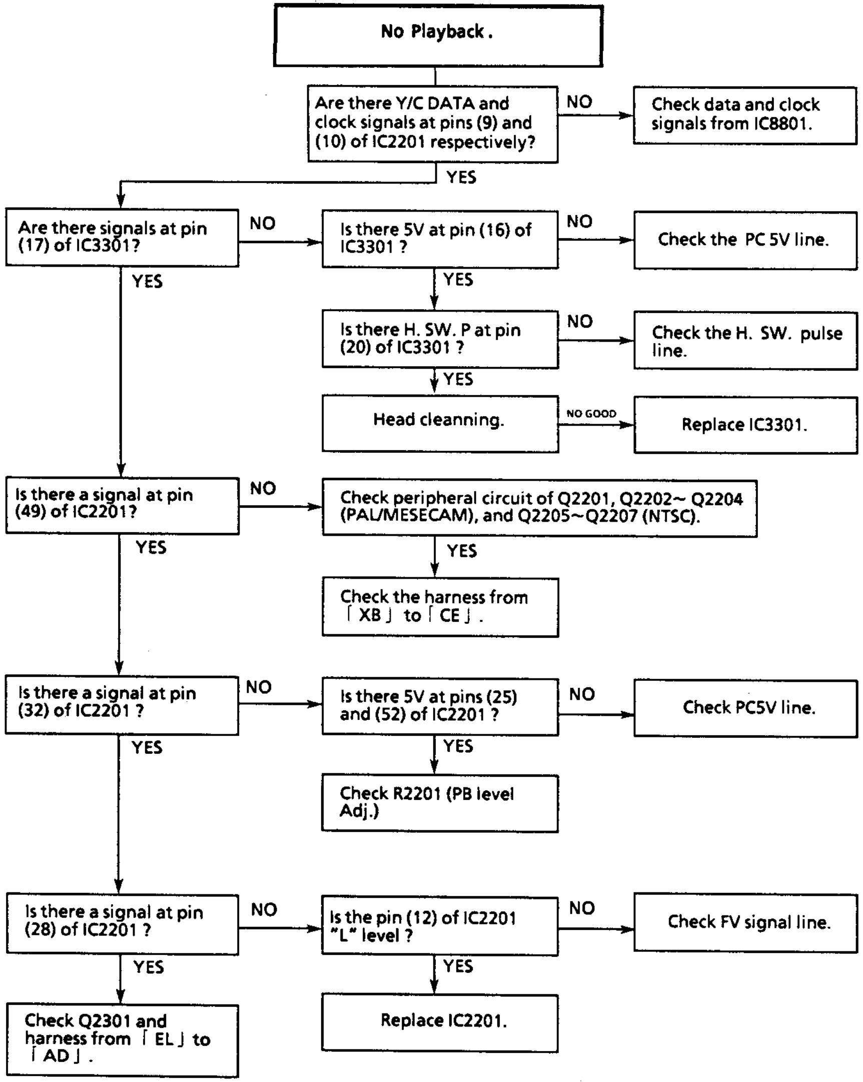
VCR RECORDING MODE (CHROMA) TROUBLESHOOTING

FLOW CHART NO. 1-14


Record is in black and white (E-E color mode).
Are there Y/C DATA and clock signals at pins (9) and (10) of IC2201 respectively?
NO
Check data and clock signals from IC8801.
YES
Is there a signal at pin (53) of IC2201?
NO
Is there 5V at pin (25) and (52) of IC2201 ?
NO
Check the PC 5V line.
YES
Check pin (3) of connector CC and signal line.
YES
Is there a signal at pin (2) of connector CE ?
NO
Check Q2213 and peripheral circuit.
YES
Is there a signal at pin (25) and (27) of IC3301 (TEA5705) ?
NO
Check the CE-XB harness.
YES
Is there chroma rotary signal at pin (11) of IC2201 ?
NO
Check the CHROMA ROTARY line.
PAL/ MESECAM
5V
2.5V
NTSC
2.5V
0V
YES
Check the signal at pin (7) of IC2201 ? (Frequency, 4.43 MHz. (PAL/MESECAM) Frequency, 3.58 MHz. (NTSC)).
NORMAL
ABNORMAL
Check and adjust VCO (FL5501).
Check X5501, 2, Q5509, 10 and peripheral circuit.
Replace IC2201.

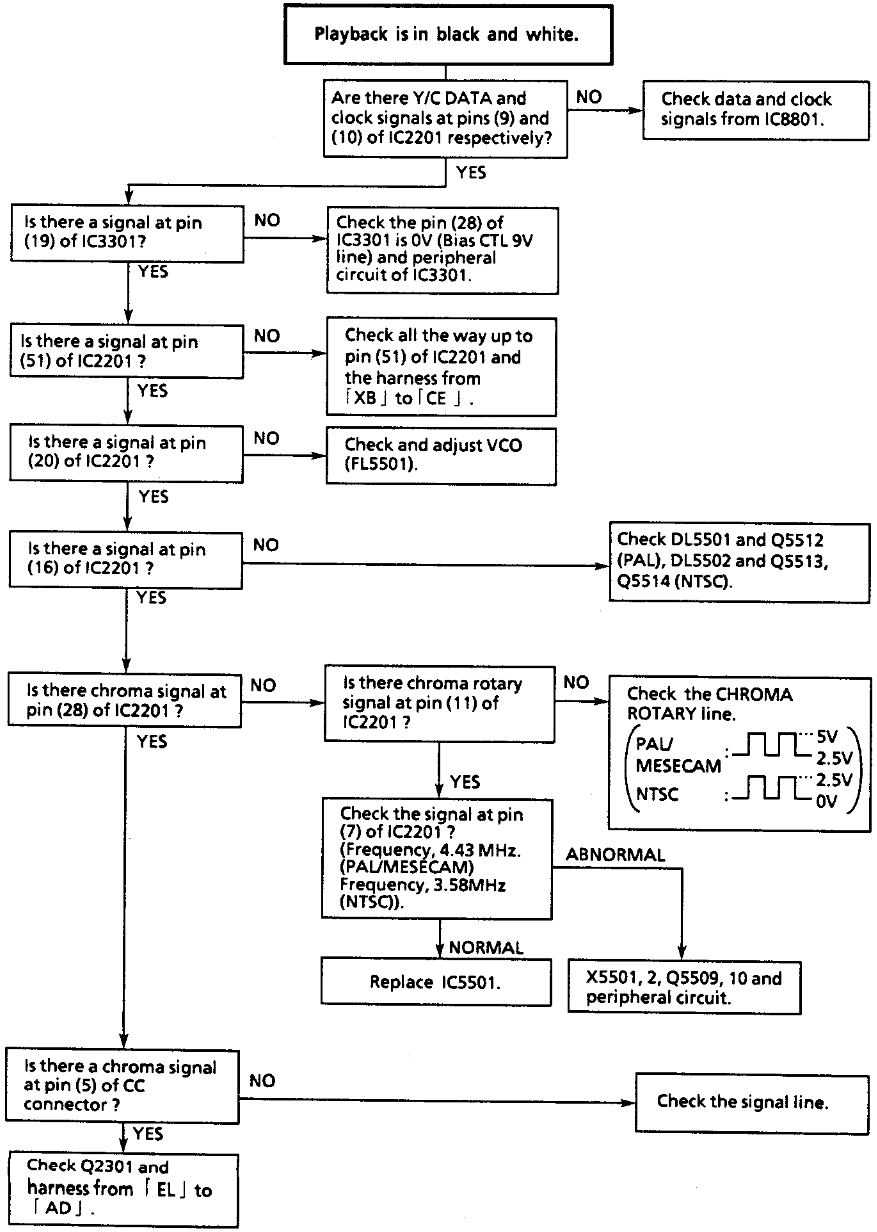
VCR PLAYBACK MODE (LUMINANCE) TROUBLESHOOTING

FLOW CHART NO. 1-15


No Playback.
Are there Y/C DATA and clock signals at pins (9) and (10) of IC2201 respectively?
NO
Check data and clock signals from IC8801.
YES
Are there signals at pin (17) of IC3301?
NO
Is there 5V at pin (16) of IC3301 ?
NO
Check the PC 5V line.
YES
Is there H. SW. P at pin (20) of IC3301 ?
NO
Check the H. SW. pulse line.
YES
Head cleanning.
NO GOOD
Replace IC3301.
YES
Is there a signal at pin (49) of IC2201?
NO
Check peripheral circuit of Q2201, Q2202~ Q2204 (PAL/MESECAM), and Q2205~Q2207 (NTSC).
YES
Check the harness from 「XB」 to 「CE」.
YES
Is there a signal at pin (32) of IC2201 ?
NO
Is there 5V at pins (25) and (52) of IC2201 ?
NO
Check PC5V line.
YES
Check R2201 (PB level Adj.)
YES
Is there a signal at pin (28) of IC2201 ?
NO
Is the pin (12) of IC2201 "L" level ?
NO
Check FV signal line.
YES
Replace IC2201.
YES
Check Q2301 and harness from 「EL」 to 「AD」.

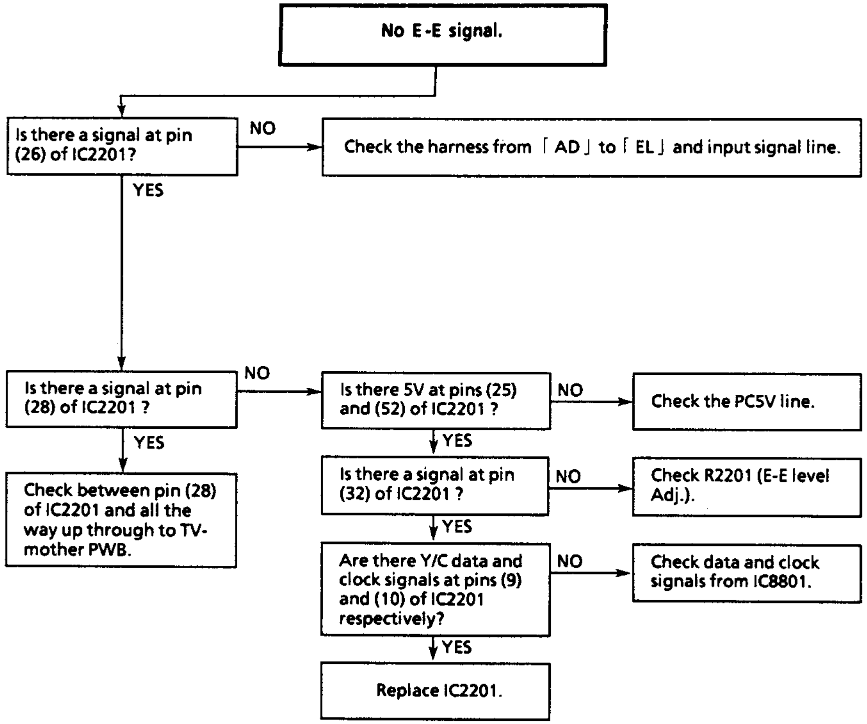
VCR PLAYBACK MODE (CHROMA) TROUBLESHOOTING

FLOW CHART NO. 1-16


Playback is in black and white.
Are there Y/C DATA and clock signals at pins (9) and (10) of IC2201 respectively?
NO
Check data and clock signals from IC8801.
YES
Is there a signal at pin (19) of IC3301?
NO
Check the pin (28) of IC3301 is 0V (Bias CTL 9V line) and peripheral circuit of IC3301.
YES
Is there a signal at pin (51) of IC2201 ?
NO
Check all the way up to pin (51) of IC2201 and the harness from 「XB」 to 「CE」.
YES
Is there a signal at pin (20) of IC2201 ?
NO
Check and adjust VCO (FL5501).
YES
Is there a signal at pin (16) of IC2201 ?
NO
Check DL5501 and Q5512 (PAL), DL5502 and Q5513, Q5514 (NTSC).
YES
Is there chroma signal at pin (28) of IC2201 ?
NO
Is there chroma rotary signal at pin (11) of IC2201 ?
NO
Check the CHROMA ROTARY line.
PAL/ MESECAM :
5V
2.5V
NTSC :
2.5V
0V
YES
Check the signal at pin (7) of IC2201 ? (Frequency, 4.43 MHz. (PAL/MESECAM) Frequency, 3.58MHz (NTSC)).
ABNORMAL
X5501, 2, Q5509, 10 and peripheral circuit.
NORMAL
Replace IC5501.
YES
Is there a chroma signal at pin (5) of CC connector ?
NO
Check the signal line.
YES
Check Q2301 and harness from 「EL」 to 「AD」.

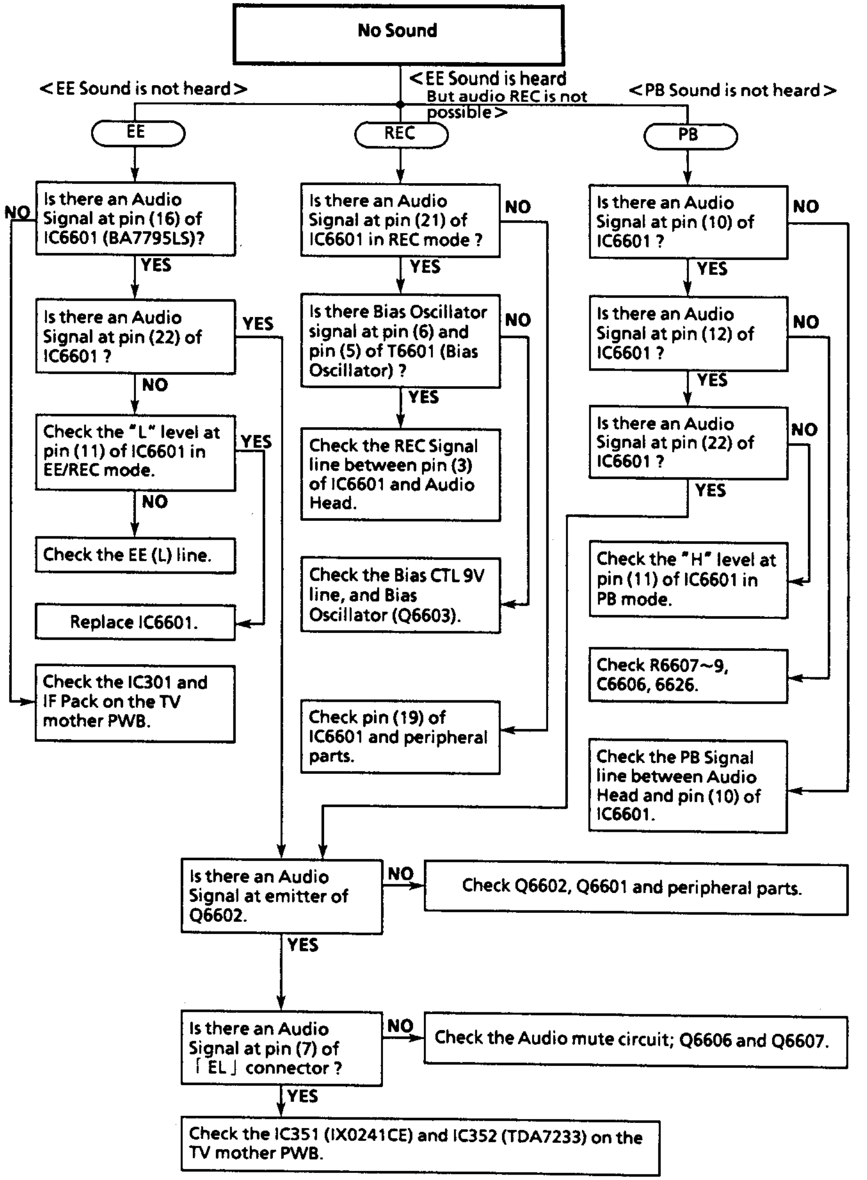
VCR E-E MODE TROUBLESHOOTING

FLOW CHART NO. 1-17


No E-E signal.
Is there a signal at pin (26) of IC2201?
NO
Check the harness from 「AD」 to 「EL」 and input signal line.
YES
Is there a signal at pin (28) of IC2201 ?
NO
Is there 5V at pins (25) and (52) of IC2201 ?
NO
Check the PC5V line.
YES
Check between pin (28) of IC2201 and all the way up through to TV-mother PWB.
YES
Is there a signal at pin (32) of IC2201 ?
NO
Check R2201 (E-E level Adj.).
YES
Are there Y/C data and clock signals at pins (9) and (10) of IC2201 respectively?
NO
Check data and clock signals from IC8801.
YES
Replace IC2201.

VCR SOUND TROUBLESHOOTING

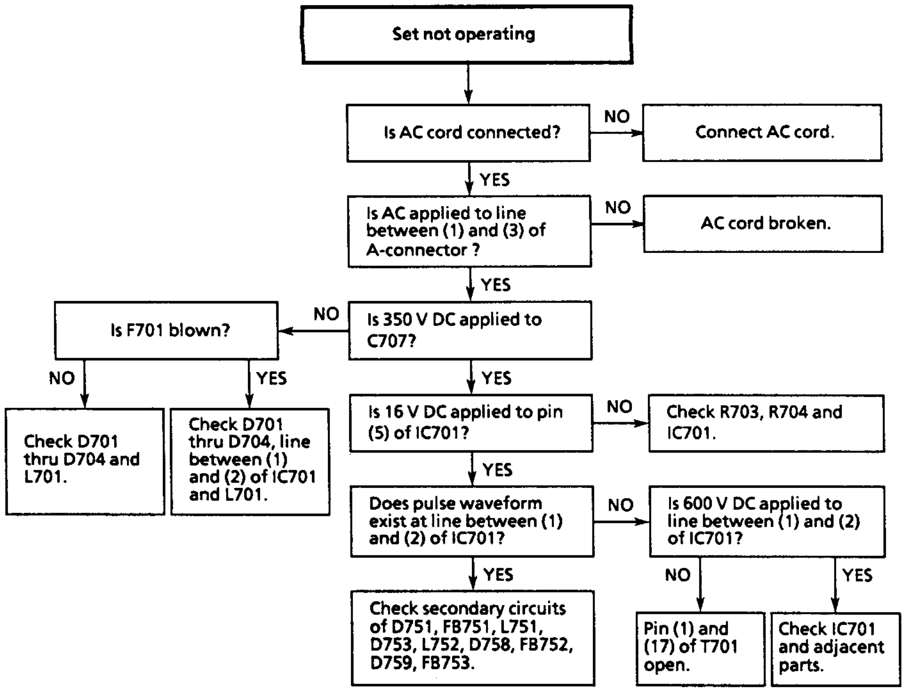
FLOW CHART NO. 1-18


No Sound
<EE Sound is not heard>
<EE Sound is heard But audio REC is not possible>
<PB Sound is not heard>
EE
REC
PB
Is there an Audio Signal at pin (16) of IC6601 (BA7795LS)?
NO
YES
Is there an Audio Signal at pin (22) of IC6601 ?
YES
NO
Check the "L" level at pin (11) of IC6601 in EE/REC mode.
YES
NO
Check the EE (L) line.
Replace IC6601.
Check the IC301 and IF Pack on the TV mother PWB.
Is there an Audio Signal at pin (21) of IC6601 in REC mode ?
NO
YES
Is there Bias Oscillator signal at pin (6) and pin (5) of T6601 (Bias Oscillator) ?
NO
YES
Check the REC Signal line between pin (3) of IC6601 and Audio Head.
Check the Bias CTL 9V line, and Bias Oscillator (Q6603).
Check pin (19) of IC6601 and peripheral parts.
Is there an Audio Signal at pin (10) of IC6601 ?
NO
YES
Is there an Audio Signal at pin (12) of IC6601 ?
NO
YES
Is there an Audio Signal at pin (22) of IC6601 ?
NO
YES
Check the "H" level at pin (11) of IC6601 in PB mode.
Check R6607~9, C6606, 6626.
Check the PB Signal line between Audio Head and pin (10) of IC6601.
Is there an Audio Signal at emitter of Q6602.
NO
Check Q6602, Q6601 and peripheral parts.
YES
Is there an Audio Signal at pin (7) of 「EL」 connector ?
NO
Check the Audio mute circuit; Q6606 and Q6607.
YES
Check the IC351 (IX0241CE) and IC352 (TDA7233) on the TV mother PWB.

TROUBLESHOOTING OF TV SECTION

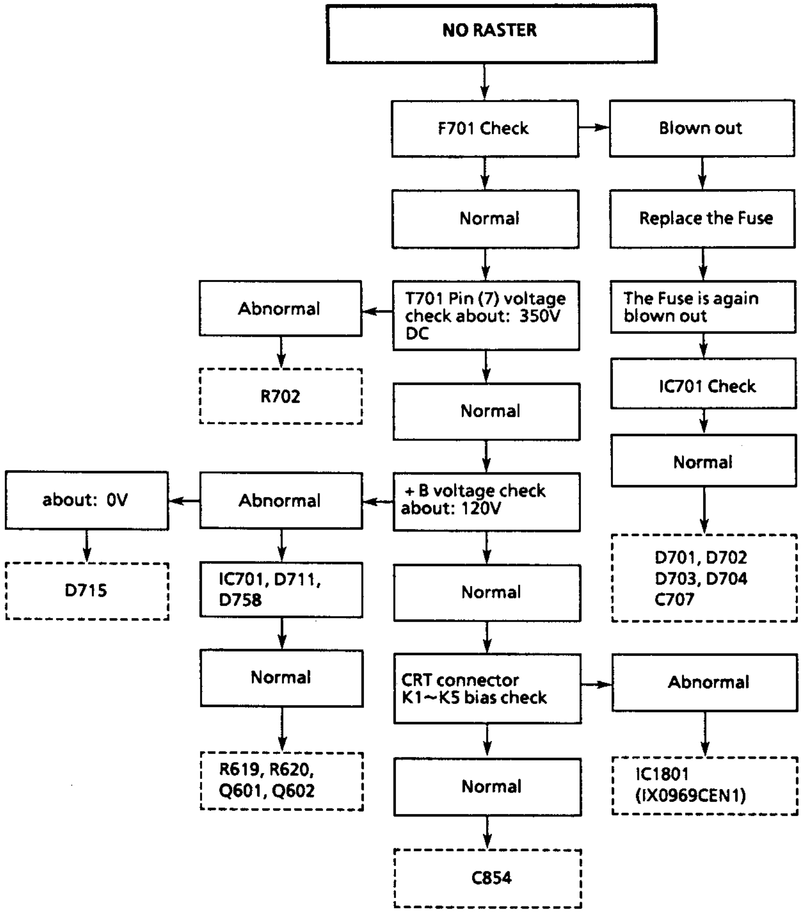
TV TROUBLESHOOTING TABLE

FLOW CHART NO. 2-1


Set not operating
Is AC cord connected?
NO
Connect AC cord.
YES
Is AC applied to line between (1) and (3) of A-connector ?
NO
AC cord broken.
YES
Is 350 V DC applied to C707?
NO
Is F701 blown?
NO
YES
Check D701 thru D704 and L701.
Check D701 thru D704, line between (1) and (2) of IC701 and L701.
YES
Is 16 V DC applied to pin (5) of IC701?
NO
Check R703, R704 and IC701.
YES
Does pulse waveform exist at line between (1) and (2) of IC701?
NO
Is 600 V DC applied to line between (1) and (2) of IC701?
NO
YES
Pin (1) and (17) of T701 open.
Check IC701 and adjacent parts.
YES
Check secondary circuits of D751, FB751, L751, D753, L752, D758, FB752, D759, FB753.

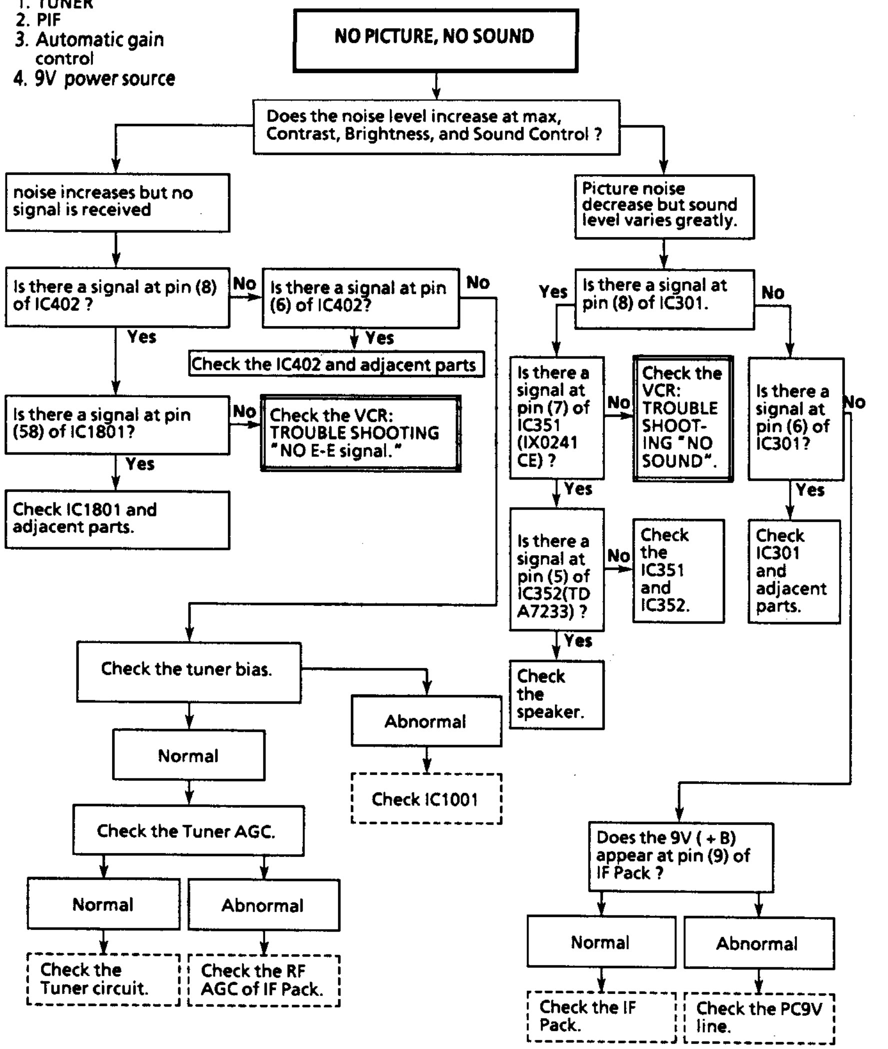
TV TROUBLESHOOTING TABLE

FLOW CHART NO. 2-2

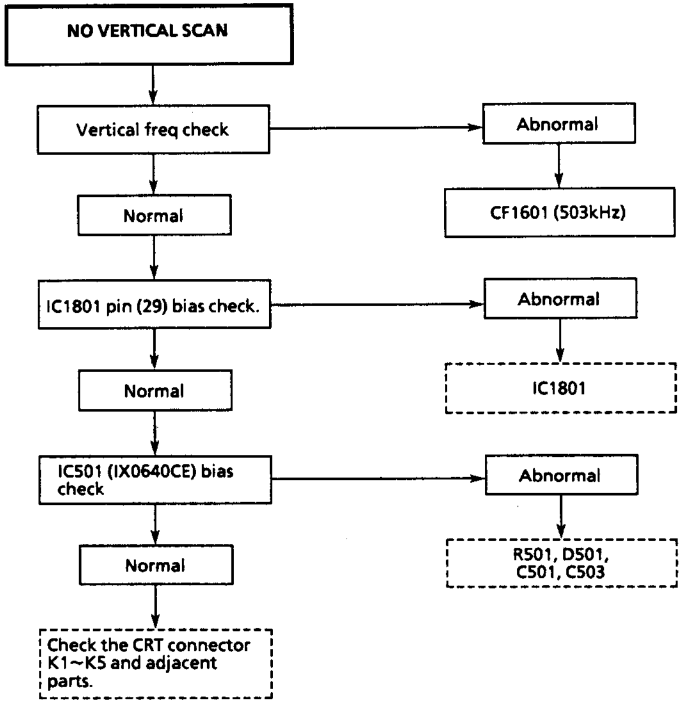

NO RASTER
F701 Check
Blown out
Normal
Replace the Fuse
T701 Pin (7) voltage check about: 350V DC
Abnormal
R702
The Fuse is again blown out
IC701 Check
Normal
Normal
+ B voltage check about: 120V
Abnormal
about: 0V
D715
IC701, D711, D758
Normal
R619, R620, Q601, Q602
D701, D702 D703, D704 C707
Normal
CRT connector K1~K5 bias check
Abnormal
IC1801 (IX0969CEN1)
Normal
C854

Circuit to be checked:
1. TUNER
2. PIF
3. Automatic gain control
4. 9V power source

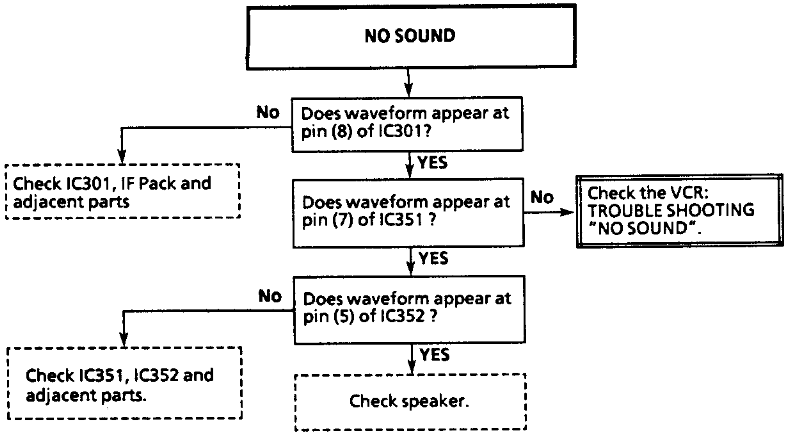
FLOW CHART NO. 2-3


NO PICTURE, NO SOUND
Does the noise level increase at max, Contrast, Brightness, and Sound Control ?
noise increases but no signal is received
Picture noise decrease but sound level varies greatly.
Is there a signal at pin (8) of IC402 ?
No
Is there a signal at pin (6) of IC402?
No
Yes
Check the IC402 and adjacent parts
Yes
Is there a signal at pin (58) of IC1801?
No
Check the VCR: TROUBLE SHOOTING "NO E-E signal."
Yes
Check IC1801 and adjacent parts.
Yes
Is there a signal at pin (8) of IC301.
No
Is there a signal at pin (7) of IC351 (IX0241 CE) ?
No
Check the VCR: TROUBLE SHOOT-ING "NO SOUND".
Is there a signal at pin (6) of IC301?
No
Yes
Is there a signal at pin (5) of IC352(TD A7233) ?
No
Check the IC351 and IC352.
Yes
Check IC301 and adjacent parts.
Yes
Check the speaker.
Check the tuner bias.
Abnormal
Check IC1001
Normal
Check the Tuner AGC.
Normal
Abnormal
Check the Tuner circuit.
Check the RF AGC of IF Pack.
Does the 9V (+B) appear at pin (9) of IF Pack ?
Normal
Abnormal
Check the IF Pack.
Check the PC9V line.

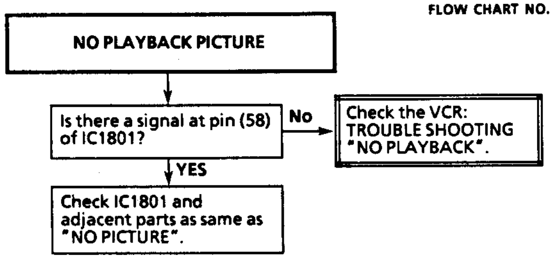
FLOW CHART NO. 2-4


NO VERTICAL SCAN
Vertical freq check
Abnormal
CF1601 (503kHz)
Normal
IC1801 pin (29) bias check.
Abnormal
IC1801
Normal
IC501 (IX0640CE) bias check
Abnormal
R501, D501, C501, C503
Normal
Check the CRT connector K1~K5 and adjacent parts.

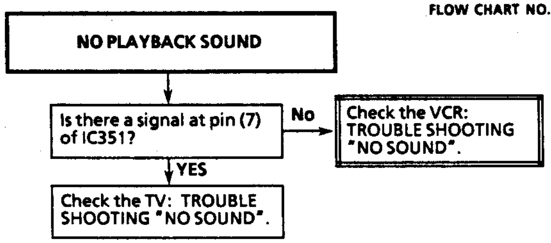
FLOW CHART NO. 2-5


NO SOUND
Does waveform appear at pin (8) of IC301?
No
Check IC301, IF Pack and adjacent parts
YES
Does waveform appear at pin (7) of IC351 ?
No
Check the VCR: TROUBLE SHOOTING "NO SOUND".
YES
Does waveform appear at pin (5) of IC352 ?
No
Check IC351, IC352 and adjacent parts.
YES
Check speaker.

FLOW CHART NO. 2-6

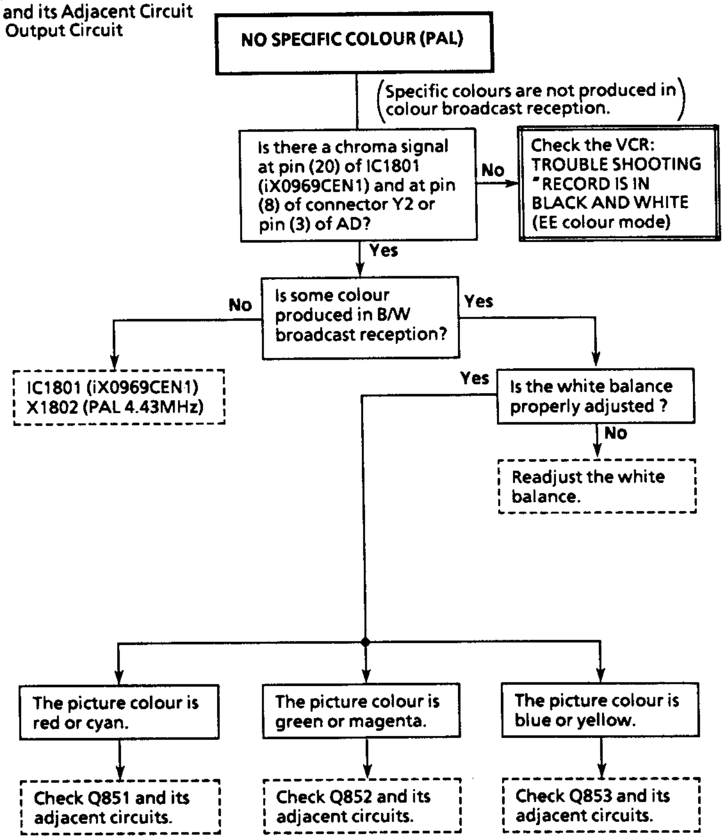

NO PLAYBACK PICTURE
Is there a signal at pin (58) of IC1801?
No
Check the VCR: TROUBLE SHOOTING "NO PLAYBACK".
YES
Check IC1801 and adjacent parts as same as "NO PICTURE".

FLOW CHART NO. 2-7


NO PLAYBACK SOUND
Is there a signal at pin (7) of IC351?
No
Check the VCR: TROUBLE SHOOTING "NO SOUND".
YES
Check the TV: TROUBLE SHOOTING "NO SOUND".

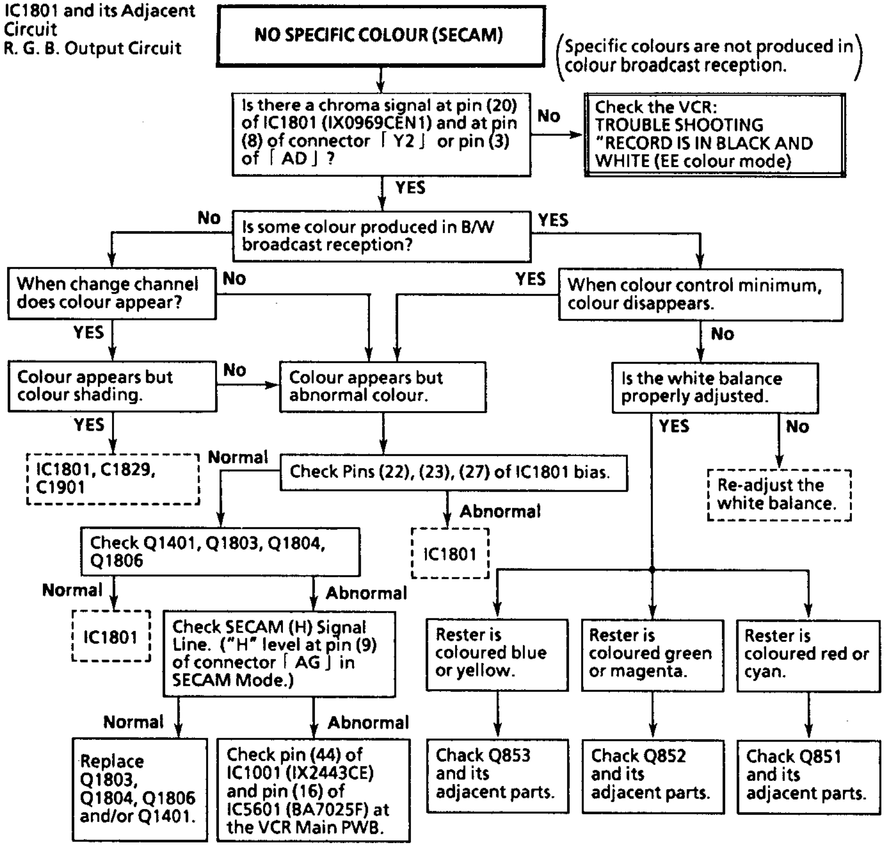
Circuits to be checked:
- IC1801 and its Adjacent Circuit
- R. G. B. Output Circuit

FLOW CHART NO. 2-8


NO SPECIFIC COLOUR (PAL)
(Specific colours are not produced in colour broadcast reception.)
Is there a chroma signal at pin (20) of IC1801 (iX0969CEN1) and at pin (8) of connector Y2 or pin (3) of AD?
No
Check the VCR: TROUBLE SHOOTING "RECORD IS IN BLACK AND WHITE (EE colour mode)
Yes
Is some colour produced in B/W broadcast reception?
No
IC1801 (iX0969CEN1) X1802 (PAL 4.43MHz)
Yes
Is the white balance properly adjusted ?
No
Readjust the white balance.
Yes
The picture colour is red or cyan.
Check Q851 and its adjacent circuits.
The picture colour is green or magenta.
Check Q852 and its adjacent circuits.
The picture colour is blue or yellow.
Check Q853 and its adjacent circuits.

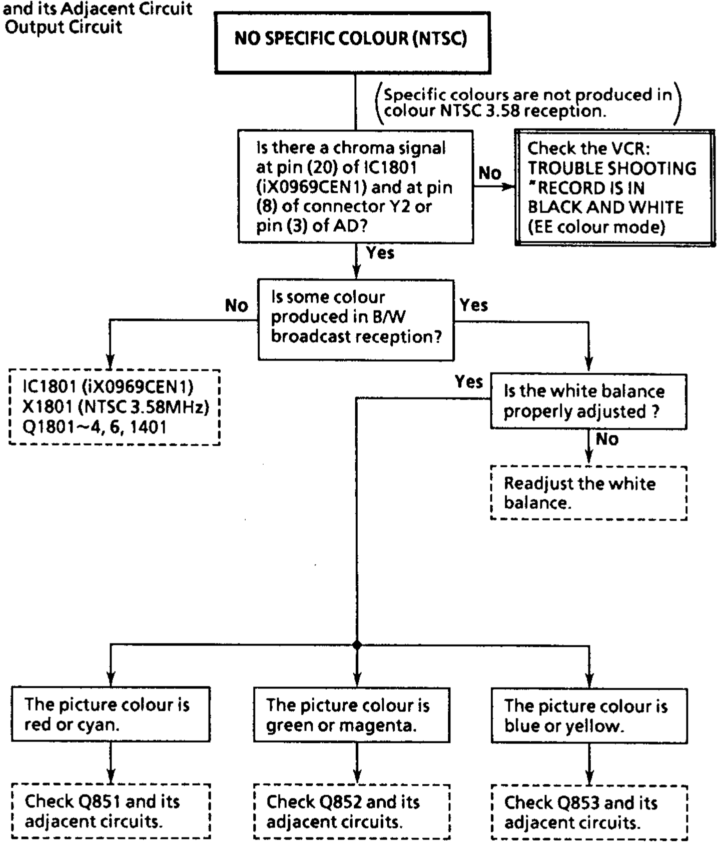
Circuits to be checked:
- IC1801 and its Adjacent Circuit
- R. G. B. Output Circuit

FLOW CHART NO. 2-9


NO SPECIFIC COLOUR (SECAM)
(Specific colours are not produced in colour broadcast reception.)
Is there a chroma signal at pin (20) of IC1801 (IX0969CEN1) and at pin (8) of connector 「Y2」 or pin (3) of 「AD」?
No
Check the VCR: TROUBLE SHOOTING "RECORD IS IN BLACK AND WHITE (EE colour mode)
YES
No
Is some colour produced in B/W broadcast reception?
YES
When change channel does colour appear?
No
YES
When colour control minimum, colour disappears.
YES
No
Colour appears but colour shading.
No
Colour appears but abnormal colour.
Is the white balance properly adjusted.
YES
YES
No
IC1801, C1829, C1901
Normal
Check Pins (22), (23), (27) of IC1801 bias.
Re-adjust the white balance.
Abnormal
Check Q1401, Q1803, Q1804, Q1806
IC1801
Normal
Abnormal
IC1801
Check SECAM (H) Signal Line. ("H" level at pin (9) of connector 「AG」 in SECAM Mode.)
Rester is coloured blue or yellow.
Rester is coloured green or magenta.
Rester is coloured red or cyan.
Normal
Abnormal
Replace Q1803, Q1804, Q1806 and/or Q1401.
Check pin (44) of IC1001 (IX2443CE) and pin (16) of IC5601 (BA7025F) at the VCR Main PWB.
Chack Q853 and its adjacent parts.
Chack Q852 and its adjacent parts.
Chack Q851 and its adjacent parts.

Circuits to be checked:
- IC1801 and its Adjacent Circuit
- R. G. B. Output Circuit

FLOW CHART NO. 2-10


NO SPECIFIC COLOUR (NTSC)
(Specific colours are not produced in colour NTSC 3.58 reception.)
Is there a chroma signal at pin (20) of IC1801 (iX0969CEN1) and at pin (8) of connector Y2 or pin (3) of AD?
No
Check the VCR: TROUBLE SHOOTING "RECORD IS IN BLACK AND WHITE (EE colour mode)
Yes
No
Is some colour produced in B/W broadcast reception?
Yes
IC1801 (iX0969CEN1) X1801 (NTSC 3.58MHz) Q1801~4, 6, 1401
Yes
Is the white balance properly adjusted ?
No
Readjust the white balance.
The picture colour is red or cyan.
The picture colour is green or magenta.
The picture colour is blue or yellow.
Check Q851 and its adjacent circuits.
Check Q852 and its adjacent circuits.
Check Q853 and its adjacent circuits.

规　　格

■主要部分

电源：　110～240V交流，50/60Hz
功率消耗：　**VT-1418M型**：77W
　VT-2118M型：98W
电视播送接收标准：　PAL-B/G、I、D/K、M制式
接收频道：　VHF（甚高频）……1A～S20频道
　UHF（超高频）……E21～US83频道
接收制式：　声音：5.5/6.0/6.5/4.5MHz
　彩色：PAL/SECAM/NTSC制式
天线输入阻抗：　VHF/UHF：75Ω非平衡式（DIN）
视频信号：　输入：0.5～2.0Vp-p/75Ω（RCA）
　输出：1.0Vp-p/75Ω（RCA）
音频信号：　输入：－8dbs/47kΩ（RCA）
　输出：－8dbs/1kΩ（RCA）
温度：　工作：5～40℃
　存放：－20～60℃
尺寸（大约）：　**VT-1418M型**：392（宽）×371（高）×395（深）mm
　VT-2118M型：523（宽）×488（高）×483（深）mm
重量（大约）：　**VT-1418M型**：14.2kg
　VT-2118M型：26.1kg
外壳材料：　塑胶
附属品：　□使用说明书
　□红外线遥控器
　□干电池（AA型×２节）
　□交流插头转接器

■电视机部分

电视荧屏尺寸：　**VT-1418M型**：33.54cm对角线长
　VT-2118M型：50.8cm对角线长
电视显象管功率：　**VT-1418M型**：800μA电子束时22.0kV
　VT-2118M型：1100μA电子束时25.0kV
扬声器输出：　**VT-1418M型**：最大1.5W（8cm圆形动态式×２只）
　VT-2118M型：最大1.5W（8cm圆形动态式×２只）
电视显象管：　型　　式；**VT-1418M型**：VB370BVBK1U-S型（色调显象管）
　VT-2118M型：VB51JFC61X/*P型或VB51JSY61X/*S型（色调显象管）
　加热灯丝；**VT-1418M型**：6.3V，300mA
　VT-2118M型：6.3V，680mA
　聚　　焦；双电位高压静电聚焦

■录象机部分

名称：　VHS（甚高灵敏度）录象制式盒式磁带彩色录象机
形式：　VHS式PAL/NTSC制式标准型
录象系统：　双旋转磁头螺旋形扫描系统
亮度信号：　调频记录
色度信号：　低频变换直接记录
视频信号制式：　PAL/SECAM/NTSC3.58MHz彩色制式
录象用盒式磁带：　VHS式录象用盒式磁带
磁带带宽：　12.7mm
走带速度：　PAL制式：23.39mm/秒（SP标准转速方式），11.70mm/秒（LP缓慢转速方式）
　NTSC制式：33.35mm/秒（SP标准转速方式），11.68mm/秒（LP缓慢转速方式，又用于再现），
　11.12mm/秒（EP超慢转速方式）
录象/再现时间：　SP方式：最大240分（E-240磁带）
　LP方式：最大480分（E-240磁带，仅限于PAL制式）
　EP方式：最大480分（T-160磁带，仅限于NTSC制式）

注：天线应使用符合DIN45325（IEC169-2）新标准要求，带有75欧姆连接器的UHF/VHF型天线。

由于产品的更新换代，上述设计及规格如有变更，恕不另告。

维修注意要点

本装置应只能由够格的维修人员来维修和修理。

高电压系统和显象管的维修

当维修高电压系统时，在显象管金属部分和第2阳极引线之间，用一绝缘（象测试探针等）和-10千欧姆的电阻串联连接，从而除去高电压系统的静电。（交流电源插头应和交流电源断开。）

1. 本装置的显象管使用整体内爆保护。
2. 为安全的连续性起见，更换时必须使用相同型号的显象管。
3. 不要抓住显象管的颈部来将其提起。
4. 只有在防震屏面磨损时，和高电压系统彻底放电之后，才能来操作显象管。

X-射线

本装置被设计成一些X-射线保持在绝对最小。但是由于故障或在修理时，有可能产生在靠近区域长期暴露于辐射之下的危险，因此，必须遵循下列预防措施。

1. VT-1418M型：当修理电路时，一定不要使装置的高电压超过25.3kV(电子束电流为0μA)。
   VT-2118M型：当修理电路时，一定不要使装置的高电压超过29.3kV(电子束电流为0μA)。
2. VT-1418M型：要使装置操作正常，必须使装置在高电压为22.0kV±1.5V-2.0kV（电子束电流为800μA）的情况下工作。
   VT-2118M型：要使装置操作正常，必须使装置在高电压为25.0kV±1.5V（电子束电流为1100μA）的情况下工作。
   本装置在出厂之前已被调整为上述的高电压。
   ∴在进行修理之后，可能会产生高电压波动的结果。因此在修理结束时，千万不要忘记检查一下高电压是否波动。
3. 不要使用没经许可类型和商标的显象管来代替，这样会产生超过标准的X-射线辐射。

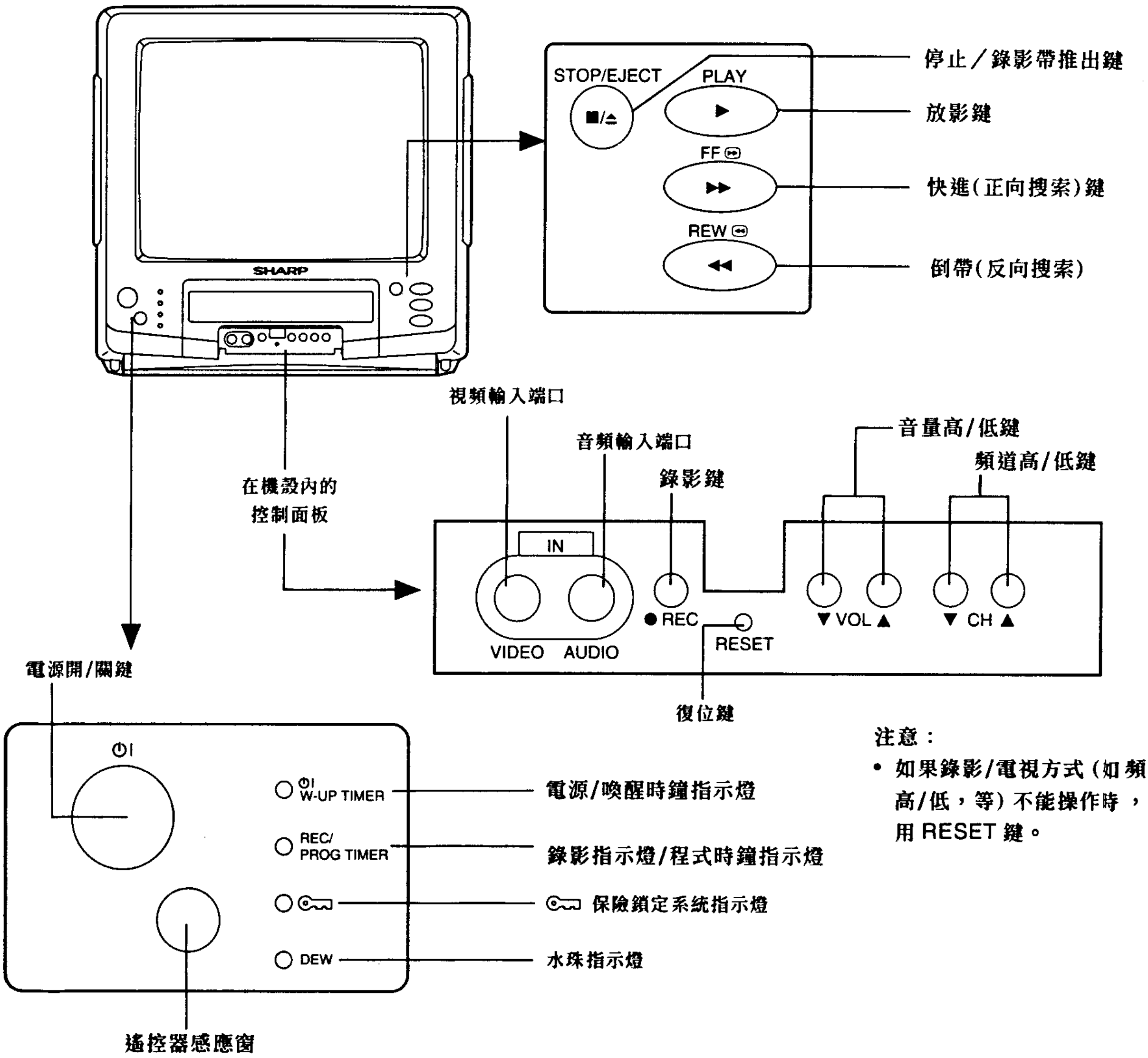
在归还装置之前

在将装置归还给用户之前，请进行下列的安全检查。

1. 检查机芯底盘和装置其它金属部件之间的全部导线的包皮，确认导线没有折叠、没有和其它金属部件短接。
2. 检查所有防护装置，象非金属的控制旋钮、绝缘青壳纸、机壳后盖、调整器和门盖或防护屏、隔离电阻一电容网、机械隔离器等。

控制键钮的部位

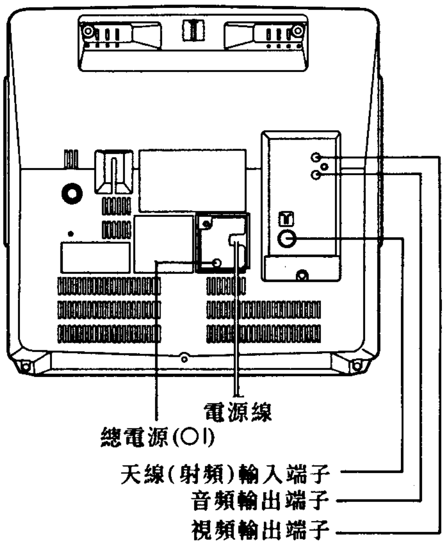
正面


SHARP
STOP/EJECT
PLAY
FF
REW
停止／錄影帶推出鍵
放影鍵
快進(正向搜索)鍵
倒帶(反向搜索)
視頻輸入端口
音頻輸入端口
錄影鍵
音量高/低鍵
頻道高/低鍵
在機殼內的
控制面板
IN
VIDEO
AUDIO
● REC
RESET
▼ VOL ▲
▼ CH ▲
復位鍵
電源開/關鍵
W-UP TIMER
REC/
PROG TIMER
DEW
電源/喚醒時鐘指示燈
錄影指示燈/程式時鐘指示燈
保險鎖定系統指示燈
水珠指示燈
遙控器感應窗

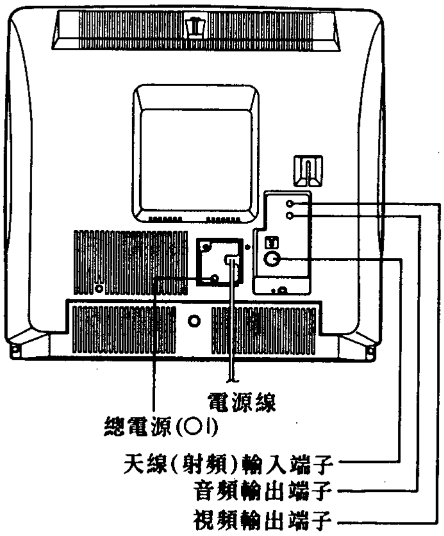
注意：
- 如果錄影/電視方式（如頻道高/低，等）不能操作時，請使用 RESET 鍵。

背面

VT-1418M


電源線
總電源(○I)
天線(射頻)輸入端子
音頻輸出端子
視頻輸出端子

VT-2118M

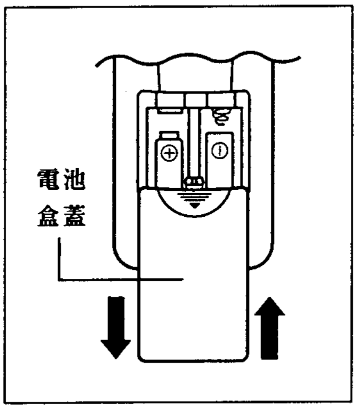

電源線
總電源(○I)
天線(射頻)輸入端子
音頻輸出端子
視頻輸出端子

控制键钮的部位（接上页）

遥控器电池的安装

遙控器使您能夠操縱放置在遠處的這台錄影電視機。使用時只要將遙控器的前部對準本機前部面板上的光感受窗，並按動控制鍵即可。

電池的安裝



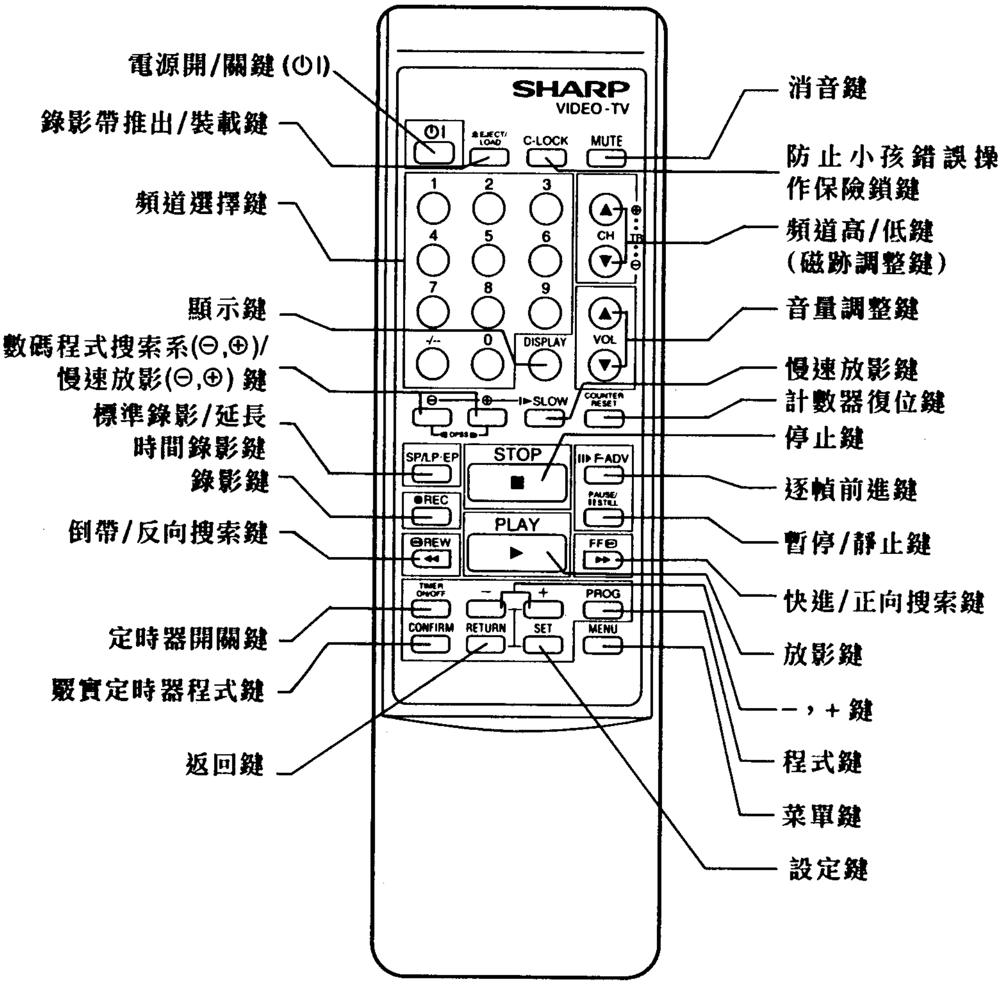
本遙控器需使用兩節R6(UM/SUM-3, AA) 1.5伏的電池(包括於附件中)。如果遙控器不工作或工作不正常，則應更換電池。該電池可在電器商店或照相器材商店裡購得。

❶ 打開遙控器背面的電池盒蓋，並取出舊電池。

❷ 裝入新電池。安裝時注意使它們的極性（“+”與“–”）與遙控器內標出的極性相符。

❸ 蓋上電池盒蓋。

遥控器各键的名称和位置


電源開/關鍵 (⏻I)
錄影帶推出/裝載鍵
頻道選擇鍵
顯示鍵
數碼程式搜索系(⊖,⊕)/
慢速放影(⊖,⊕) 鍵
標準錄影/延長
時間錄影鍵
錄影鍵
倒帶/反向搜索鍵
定時器開關鍵
覆實定時器程式鍵
返回鍵
消音鍵
防止小孩錯誤操作保險鎖鍵
頻道高/低鍵
(磁跡調整鍵)
音量調整鍵
慢速放影鍵
計數器復位鍵
停止鍵
逐幀前進鍵
暫停/靜止鍵
快進/正向搜索鍵
放影鍵
–，+ 鍵
程式鍵
菜單鍵
設定鍵
SHARP
VIDEO-TV
EJECT/LOAD
C-LOCK
MUTE
CH
TR
VOL
DISPLAY
SLOW
COUNTER RESET
SP/LP·EP
STOP
F-ADV
REC
PAUSE/STILL
PLAY
REW
FF
TIMER ON/OFF
PROG
CONFIRM
RETURN
SET
MENU

分解和组装

■电视机部分

1.松去背面壳盖的8只紧固螺丝。(VT-1418M型)

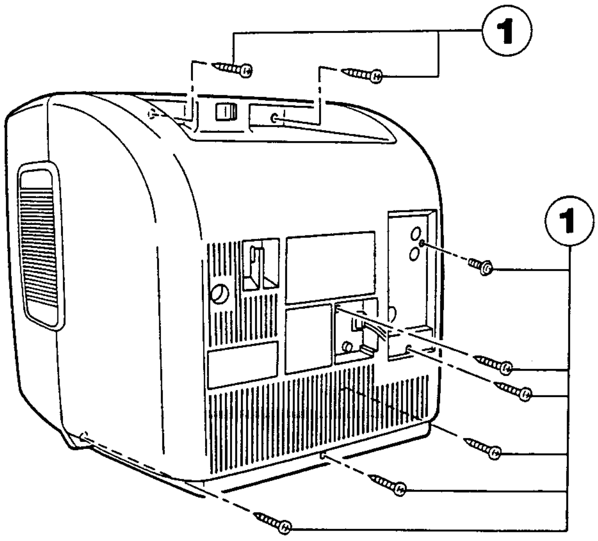
1.松去背面壳盖的9只紧固螺丝。(VT-2118M型)

2.拆去主电路印刷电路板的F和G接线器之接线。

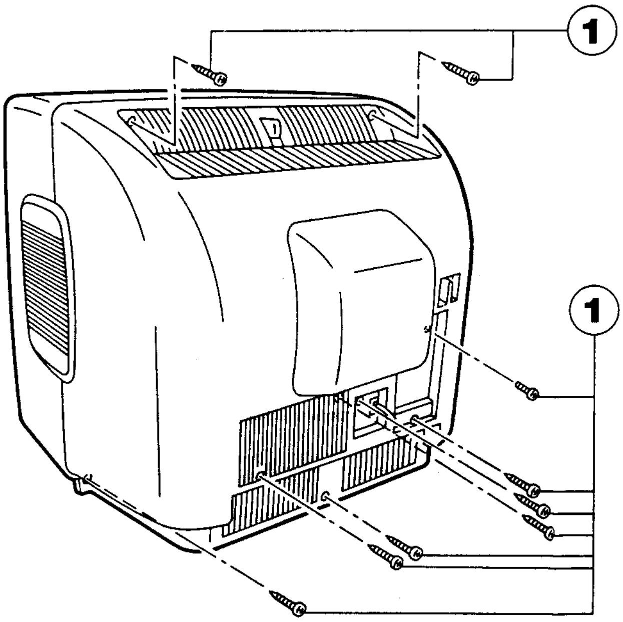
3.松去录象机装置的固定螺丝，取下录象机。

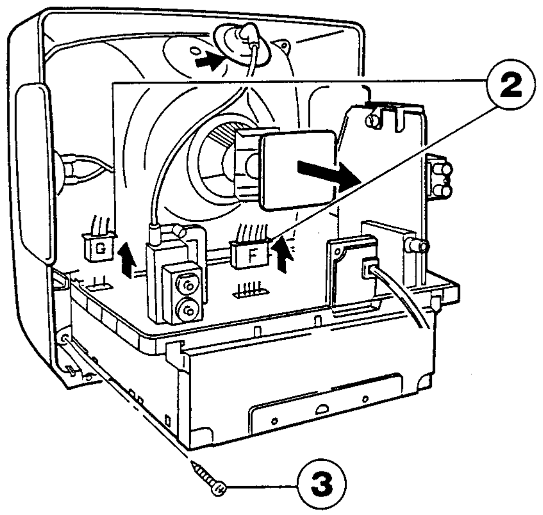
4.松去主电路印刷电路板上的两只紧固螺丝，取下录象机上的该印刷电路板。

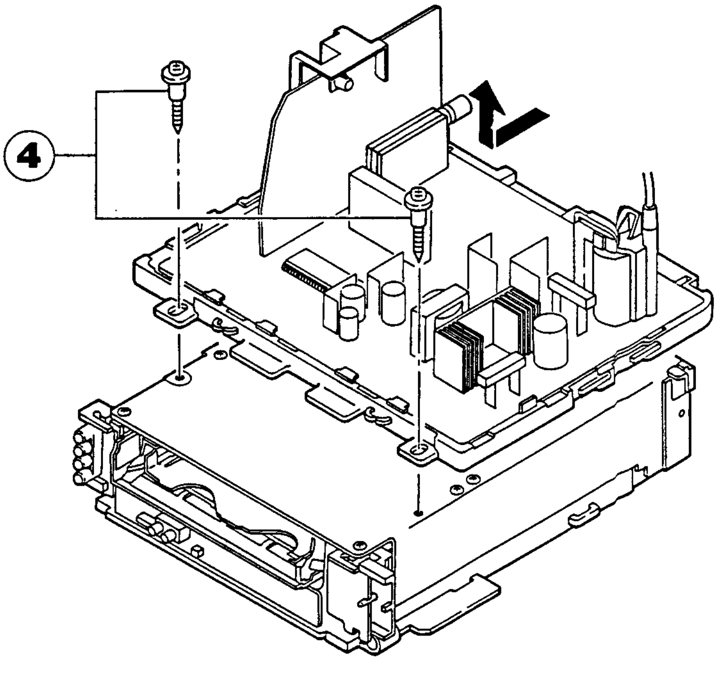
(VT-1418M型)



(VT-2118M型)







分解和组装（接上页）

■ 检查维修时的接线处理

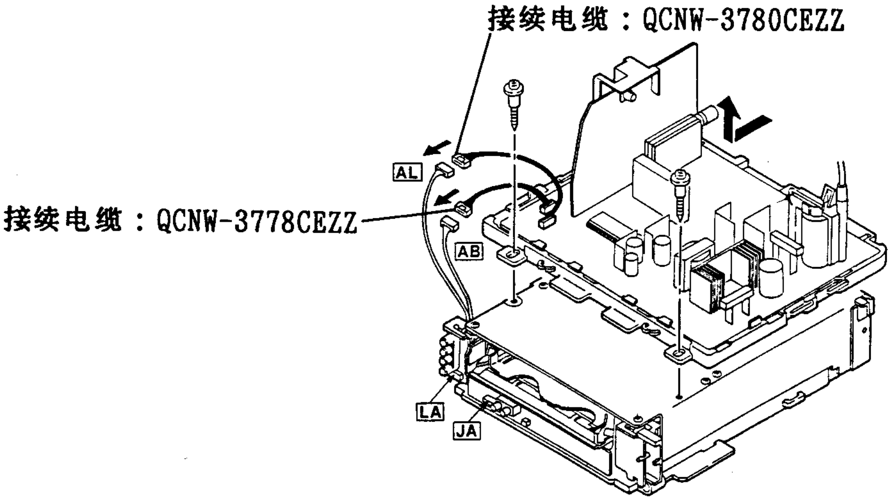
对从一体机中分解出的录象机部分进行检查维修时，用下述接续电缆进行接线处理。

接续电缆：零件编号QCNW-3778CEZZ、QCNW-3780CEZZ

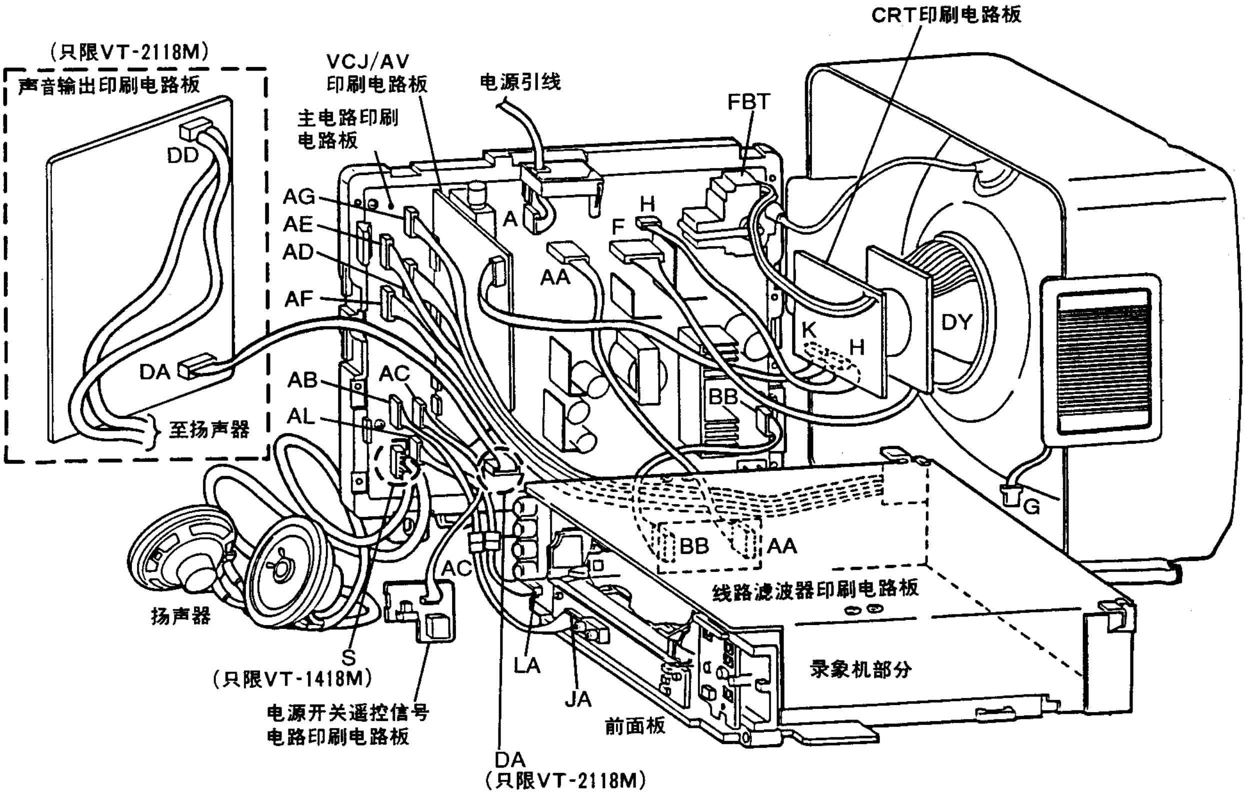
●电缆的接续方法

(1)AB（电视机）与JA（声象插孔）之间：
用QCNW-3778CEZZ电缆连接AB插头与AB插座。

(2)AL（电视机）与LA（光电表示器）之间：
用QCNW-3780CEZZ电缆连接AL插头和AL插座。


接续电缆：QCNW-3780CEZZ
接续电缆：QCNW-3778CEZZ
AL
AB
LA
JA

5. 拆去CRT印刷电路板、消磁线圈接线器G以及前部电源开关遥控电路印刷电路板。将主电路印刷电路板垂直放置。
6. 松去CRT印刷电路板的接线。按下图所述，将主电路印刷电路板与录象机部分放置于一起。移去前部电源开关遥控电路印刷电路板、扬声器以及消磁线圈接线器G。

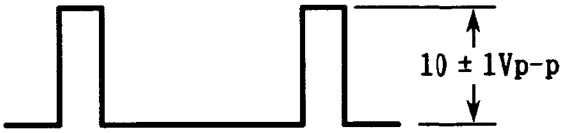

（只限VT-2118M）
声音输出印刷电路板
DD
DA
至扬声器
VCJ/AV
印刷电路板
主电路印刷
电路板
电源引线
FBT
CRT印刷电路板
AG
AE
AD
AF
AB
AC
AL
A
AA
F
H
K
H
DY
BB
BB
AA
G
AC
扬声器
S
（只限VT-1418M）
电源开关遥控信号
电路印刷电路板
LA
JA
前面板
DA
（只限VT-2118M）
线路滤波器印刷电路板
录象机部分

电视机部分电路的调试

视频/色度调试

调试条件	调试方法

1. CRT切断调试

调试点 □R853:红色偏转控制 □R859:绿色偏转控制 □R865:蓝色偏转控制 □R602:画面控制(T602的一部分) □R857:绿色激励控制 □R863:蓝色激励控制 **注意:** 作此项调试之前,请用大于600μA(VT-1418M型)/700μA(VT-2118M型)的电子束电流预热CRT装置30分钟。 1.通过图案发生器接收“单象管图案”信号。 2.设红色偏转控制于最小(0/10)位置。 设绿色偏转控制于最小(0/10)位置。 设蓝色偏转控制于最小(0/10)位置。 设绿色激励控制于中心(5/10)位置。 设蓝色激励控制于中心(5/10)位置。 3.用“∧”或“∨”键将控制旋钮设定于“NORMAL(标准)”位置,以便对比度控制旋钮置于最大(60)位置,彩色控制旋钮置于中心(0)位置以及亮度控制旋钮置于中心(0)位置。 4.设画面控制于最小(0/10)位置。 5.旋转S1401(维修开关)于水平线位置。 6.将示波器与TP852(红色阴极)连接。	1.调节副亮度控制(R425),使示波器上的消隐脉冲波的振幅达10±1Vp-p。  2.顺时针方向缓慢地旋转画面控制旋钮,使荧屏上微弱地出现红、绿、蓝三色之一的单色水平光栅为止。 3.精细调节其它二色的偏转控制,使荧屏上的水平光栅变成白色。 4.逆时针方向旋转画面控制旋转,直到荧屏上的水平光栅完全消失为止。

2. 副对比度控制

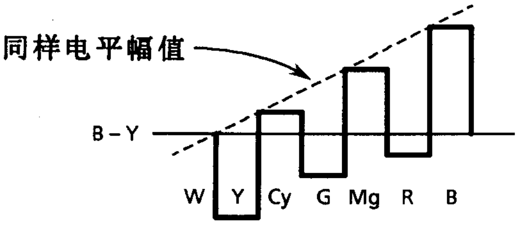
调试点 □R421:副对比度控制 **注意:** 作此项调试之前,请用大于600μA(VT-1418M型)/700μA(VT-2118M型)的电子束电流预热CRT装置30分钟。 1.通过图案发生器接收“单象管图案”信号。 2.设对比度控制和亮度控制于最大位置。 3.接直流毫安计(测试范围:3mA)于TP601⊕和TP602⊖之间。	1.调节副对比度控制,使其电子束电流为0.8mA(VT-1418M型)/1.1mA(VT-2118M型)。

视频/色度调试（接上页）

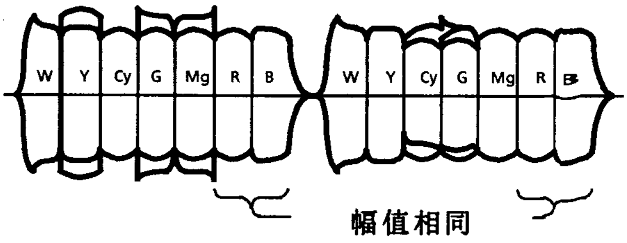
3. 白色平衡和底色的调试

调试条件	调试方法
调试点 □R857:绿色激励控制 □R863:蓝色激励控制 □R421:副对比度控制 注意： 作此项调试之前，请用大于600μA(VT-1418M型)/700μA(VT-2118M型)的电子束电流预热CRT装置30分钟。 1. 通过图案发生器接收“单象管图案”信号。 2. 设对比度控制和亮度控制于最大位置。 3. 接电子束安培计（测试范围：3mA）于TP601和TP602之间。	1. 调节副对比度控制，使其电子束电流达0.8mA(VT-1418M型)/1.1mA(VT-2118M型)(粗调）。 2. 调节绿色激励控制和蓝色激励控制，使其色温达至10900° K。 ●高电子束： 0.8mA(VT-1418M型) 1.1mA(VT-2118M型) 3. 调节对比度控制和亮度控制，使其电子束电流达200μA左右，然后，检查色温是否为10900° K。如果，这时的色温并非10900° K，则必须回到“CRT切断调试”并重新进行此项调试。 (X=0.275, Y=0.287)。

4. 副色调调试

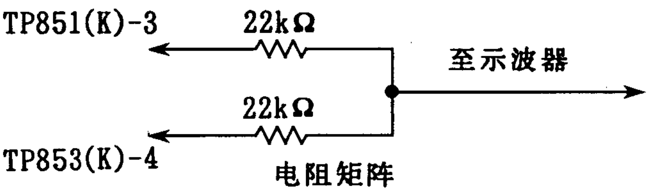
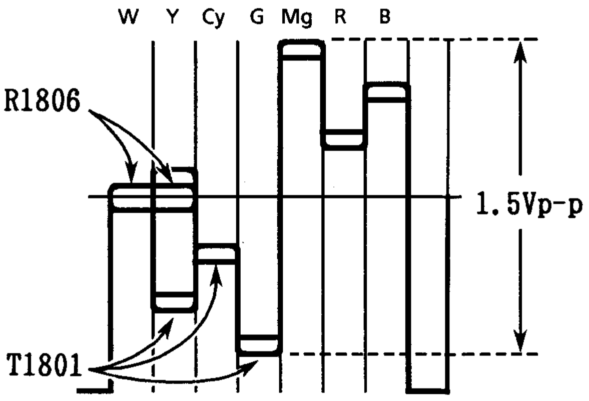
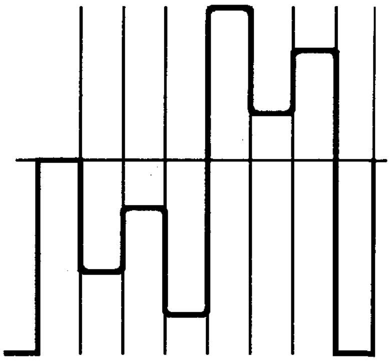
调试条件	调试方法
调试点 □R1882：副色调控制 1. 设彩条发生器于声象制式状态，将“NTSC制式彩条”信号传送至视频输入插孔。 2. 将示波器与TP853(B-Y)连接。 3. 设色调控制于中心(0)位置。 4. 设维修开关S1401于视频信号截断位置，以截断亮度信号的输出。	1. 调节彩色控制键，使输出波形达至3Vp-p左右。 2. 调节副色调控制(R1882)，以获得如下图所示的输出波形。 3. 将S1401转回至中心(CENTER)位置。 

5. 贝尔滤波器的调试

调试条件	调试方法
调试点 □T1802：贝尔滤波器控制 1. 接收用彩条发生器发生的“SECAM制式彩条”信号。 2. 按下述设定要求，接示波器于TP1801。 ●测试范围：0.05V/段　交流 ●扫描时间：20微秒/段 ●探　　针：1/10(30pF,大于10MΩ)	1. 调节贝尔滤波器控制(T1802)，使红色(R)输出幅值与蓝色(B)输出幅值达至相同程度。  W Y Cy G Mg R B W Y Cy G Mg R B 幅值相同

视频/色度调试（接上页）

6. PAL色度调试

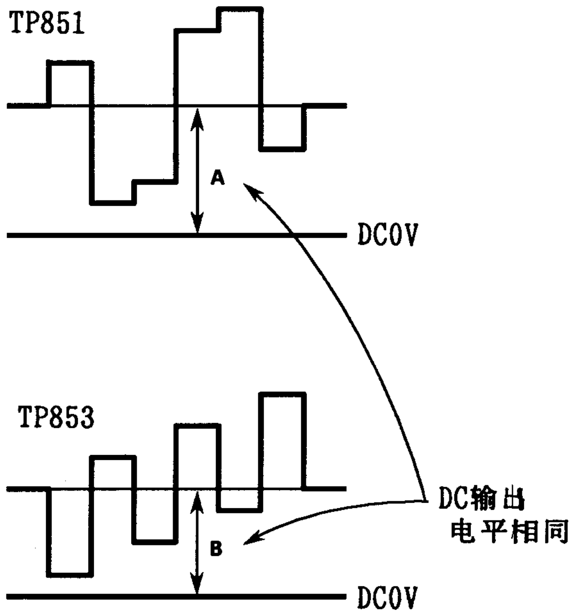
调试条件	调试方法
调试点 □R1806：1H延迟放大控制 □T1801：1H延迟相位控制 注意：作这项调试必须于PIF/AFT/AGC的调试完成后进行。 1.通过图案发生器接收“PAL制式彩条”信号。 2.如下图所示，通过一个电阻矩阵变换电路，将示波器与连接器(K)的销(3)和销(4)相接。  TP851(K)-3 22kΩ 至示波器 22kΩ TP853(K)-4 电阻矩阵 3.设维修开关S1401于视频信号截断位置，以截断亮度信号的输出。	1.调节彩色控制键，使色差信号的输出波形达至1.5Vp-p。 2.调节R1806及T1801，使图a所示的波形调节至图b所示的波形。 3.将S1401转回至中心(CENTER)位置。  W Y Cy G Mg R B R1806 1.5Vp-p T1801 图a.调试前的波形  图b.调试后的波形

7. SECAM制式仰制器的调试

调试点 □T1803：SECAM制式抑制器控制 1.接收用彩条发生器发生的“SECAM制式彩条”信号。 2.按下述设定要求，接示波器于TP1802。 ●测试范围：1V/段 （调垂直位置于适当程度） ●扫描时间：20微秒/段	1.调节T1803，使TP1802处的DC电压达至最大（约9.5V）。

视频/色度调试（接上页）

8. 红色亮度/蓝色亮度信号鉴别器的调试

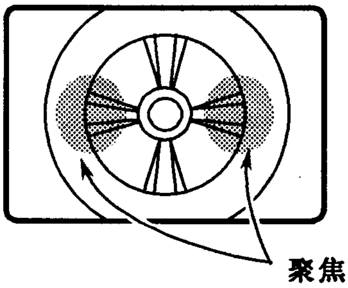
调试条件	调试方法
调试点 □T1804：红色亮度(R-Y)鉴别器控制 □T1805：蓝色亮度(B-Y)鉴别器控制 1. 接收用彩条发生器发生的“SECAM制式彩条”信号。 2. 按下述设定要求，接示波器（用双频道）于电视机阴极显象管座装置上的TP851(R-Y控制)和TP853(B-Y控制)。 ●测试范围：1V/段直流 ●扫描时间：20微秒/段 3. 设维修开关S1401于视频信号截断位置，以截断亮度信号的输出。 4. 分别设对比度控制及亮度控制于其最大位置。	1. 调节T1804(R-Y鉴别器控制)和T1805(B-Y鉴别器控制)，使设彩色控制于最小位置与最大位置（100%）时的DC输出电平相同(A=B)。 ＊测试时接一只电容器(0.001μF)于TP851和TP853之间，以防止噪声的干扰。 2. 设维修开关S1401于其中央位置。  TP851 A DC0V TP853 B DC0V DC输出 电平相同

偏转系统的调试

调试条件	调试方法

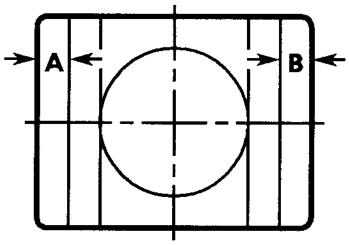
1．聚焦的调试

●作此项调试时，请保持装置面朝东方之方向进行之。

调试点 □T602：聚焦控制(T602的一部分) 1.接收“单象管图案”信号。 2.设亮度控制及对比度控制于NORMAL（标准）位置。	1.调节聚焦控制(T602的一部分)，使CRT荧屏中心部达最佳聚焦效果。 

2．水平中心调试

●作此项调试时，请保持装置面朝东方之方向进行之。

调试点 □R1602：水平中心控制 注意：此项调试应在色彩纯度和画面聚焦度调试之后进行。 1.接收“单象管图案”信号。	1.调节R1602，使荧屏上的图象水平中心位置达到如下图所示A=B的程度。 

3．垂直线性度调试

●作此项调试时，请保持装置面朝东方之方向进行之。

调试点 □R526：垂直线性度控制 1.接收“单象管图案”信号。	1.调节R526，使画面的垂直线性度达最佳状态。

4．垂直尺寸调试

●作此项调试时，请保持装置面朝东方之方向进行之。

调试点 □R503：垂直尺寸控制 1.接收“单象管图案”信号。 2.设亮度控制和对比度控制于最大位置。	1.调节R503，使画面的垂直尺寸达最佳状态。 ●垂直尺寸：8%TYP 12%最大

偏转系统的调试（接上页）

5. 垂直中心调试

●作此项调试时，请保持装置面朝东方之方向进行之。

调试条件	调试方法
调试点 □S501：垂直中心调节开关 注意：此项调试应在色彩纯度和画面聚焦度调试之后进行。 1.接收“单象管图案”信号。	1.调节S501，使画面的几何中心与CRT几何中心对齐。

中频（IF）电路的调试

射频自动增益控制(RF AGC)的调试

检测仪器	示波器 信号发生器
工作状态	E-E
输入信号	彩条信号
测试点	TP201(3)（接地） TP201(1)（视频输出）
调整点	VR001(AGC调节)

1.接收彩条信号（输入磁场强度：80dBμ）。

2.观察示波器荧屏上表示的视频输出端输出波形。调节中频包装置的VR001(AGC调节），使示波器荧屏上的噪声线完全消失，并使其输出波形近似达至同步。

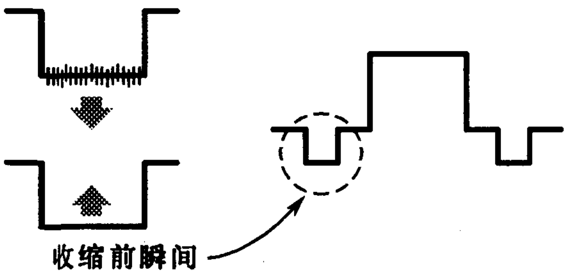


图1

自动频率调谐(AFT)的调试

检测仪器	示波器 信号发生器
工作状态	E-E
输入信号	PIF频率单频信号 彩条信号（70dBμ）
测试点	TP201(3)（接地） TP201(1)（视频输出）
调整点	T002(AFT线圈)
规定要求	——

1.接收彩条信号（输入磁场强度：70dBμ）。

2.通过信号发生器，向调谐器中频输出端输入PIF频率(38.9MHz)信号（正弦波）。

3.将调谐开关设于VHF或UHF位置。触按调谐键的（+）或（—），将示波器荧屏上表现出的差拍调至其最小。

4.将调谐开关设于NORMAL位置。调节T002(AFT线圈），使示波器荧屏上表现出的差拍达至最小程度。

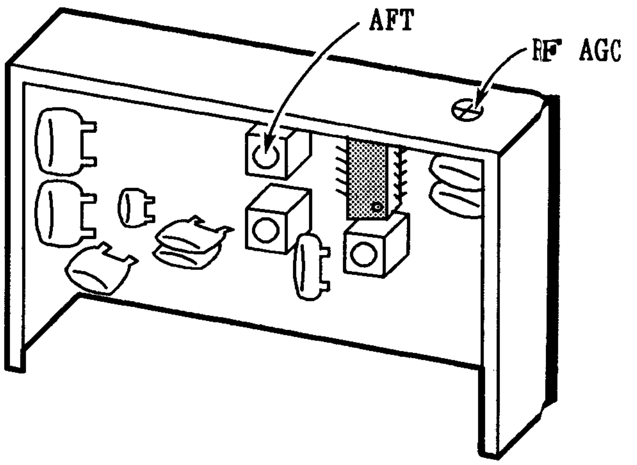
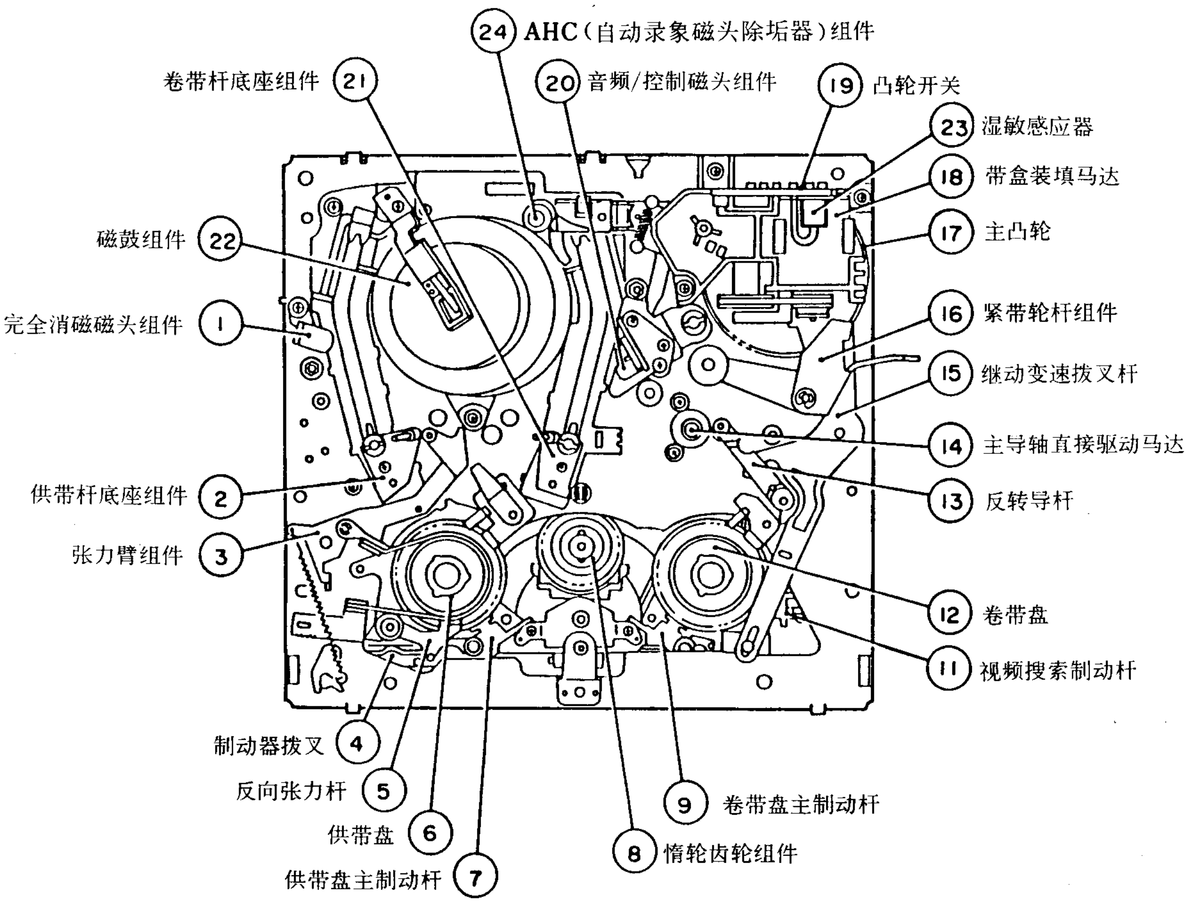


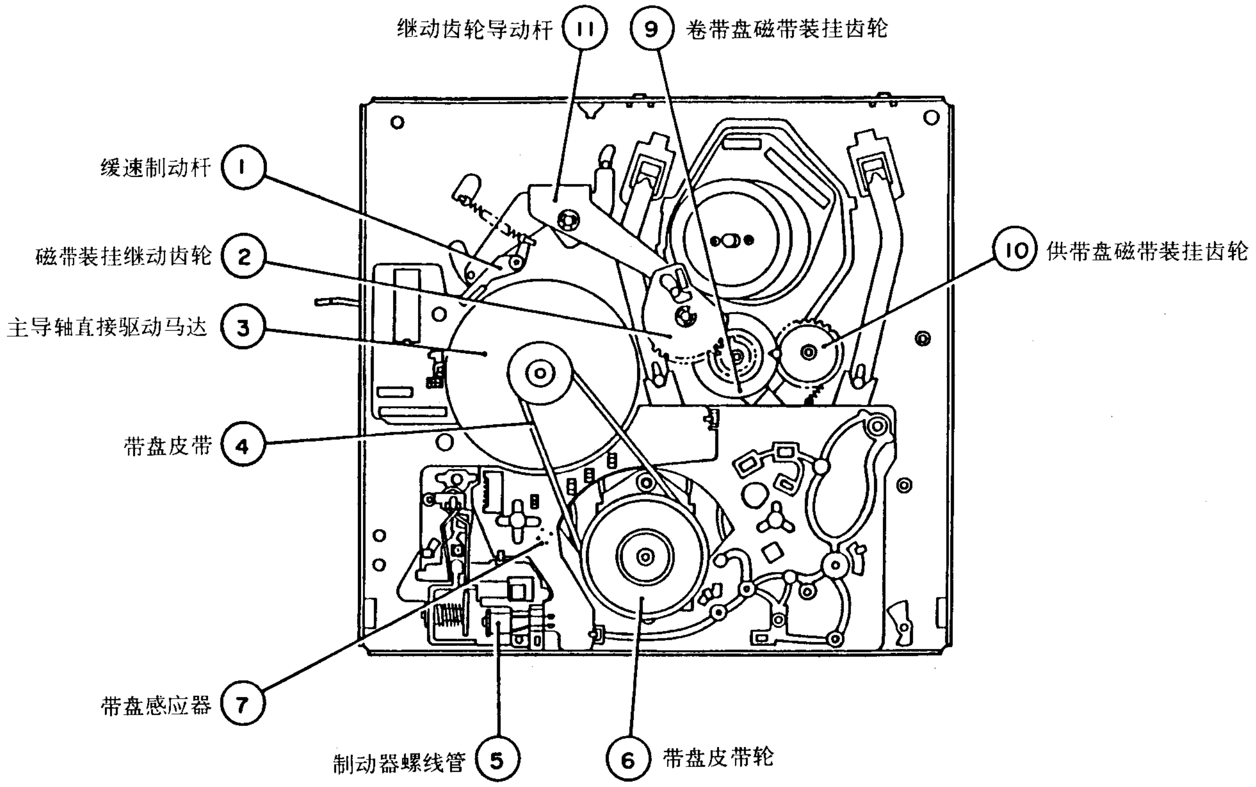
图2 中频包装置

主要机械部件的配置(俯视)及其功能


24 AHC（自动录象磁头除垢器）组件
卷带杆底座组件 21
20 音频/控制磁头组件
19 凸轮开关
23 湿敏感应器
18 带盒装填马达
17 主凸轮
磁鼓组件 22
完全消磁磁头组件 1
16 紧带轮杆组件
15 继动变速拨叉杆
14 主导轴直接驱动马达
供带杆底座组件 2
13 反转导杆
张力臂组件 3
12 卷带盘
11 视频搜索制动杆
制动器拨叉 4
反向张力杆 5
9 卷带盘主制动杆
供带盘 6
8 惰轮齿轮组件
供带盘主制动杆 7

序号	功　　能	序号	序　　号
1.	完全消磁磁头组件 于录象工作状态时消去录象磁带的全部记录内容。	13.	反转导杆 于视频搜索倒带状态时，拉挂磁带，并且通过其高导杆和低导杆控制其走带高度。
3.	张力臂组件 检测走带时录象磁带的松紧程度，并与张力带一道对供带盘产生制动作用。	15.	继动变速拨叉杆 将主凸轮的运动传输至制动器拨叉，以及转为反转导杆的动作。
4.	制动器拨叉 设定制动器制动位置，或诸如停止以及再生状态时制动器应处位置。	16.	紧带轮杆组件 于走带状态中，压装磁带于主导轴。于磁带出盒动作时，其右侧突出部拨动磁带盒室控制组件离合器，使其机构将带盒推出盒室。
5.	反向张力杆 于磁带装填动作以及从再现转向视频搜索倒带动作中，以适当的程度对供带盘产生制动作用，以避免磁带的松弛。	17.	主凸轮 装挂磁带时，顺时针转动，退挂磁带时，逆时针转动，并于各种相应的工作状态，对制动器拨叉产生作用。
7.	供带盘主制动 于录象机动作停止时以及录象机处快进或倒带状态时，对供带盘产生制动作用，以防止磁带的松弛。	18.	带盒装填马达 其马达之作用在于为填装机构提供带盒填入及磁带装挂的动力。其动力通过马达皮带的传动，转为主凸轮及磁带盒室控制机构的动作。
9.	卷带盘主制动 于录象机动作停止时以及录象机处快进或倒带状态时，对卷带盘产生制动作用，以防止磁带的松弛。	19.	凸轮开关 与主凸轮同步转动，通过其内部开关，对各工作状态时主凸轮的位置进行检测控制。
11.	视频搜索制动杆 其制动杆一般总与卷带盘相触，以适当的程度对卷带盘产生制动作用。于视频搜索状态时，其制动杆对卷带盘施加的制动力比一般状态时更大一些。	23.	湿敏感应器 对录象机内潮湿程度进行感应监测。一旦录象机内潮湿程度超出其规定值，其感应器便停止录象机的所有机械动作。

主要机械部件的配置(仰视)及其功能


继动齿轮导动杆 ⑪
⑨ 卷带盘磁带装挂齿轮
缓速制动杆 ①
磁带装挂继动齿轮 ②
主导轴直接驱动马达 ③
带盘皮带 ④
⑩ 供带盘磁带装挂齿轮
带盘感应器 ⑦
制动器螺线管 ⑤
⑥ 带盘皮带轮

序号	功　　能
1.	缓速制动器 于缓速静止状态时，其制动器相触于与主凸轮连动的主导轴，对其轴产生适当的制动作用。
3.	主导轴直接驱动马达 提供走带所需动力。其动力的转换由带盘皮带实现。
4.	带盘皮带 带动带盘皮带轮转动，以驱动磁带的运转。
5.	制动器螺线管 于快进或倒带状态时，吸引抓握制动器拨叉；于停止状态时，松放其拨叉。
6.	带盘皮带轮 将主导轴直接驱动马达的动力经带盘惰轮传送给带盘。

序号	功　　能
7.	带盘感应器 产生一光束射于带盘底侧的反射板上，并通过接受其反射光对带盘的转动情况进行监测。
9.	卷带盘磁带装挂齿轮 通过磁带装挂继动齿轮，移动卷带杆底座及导辊，并将磁带环绕于磁鼓。另外，其齿轮还有传动力于供带盘磁带装挂齿轮之作用。
10.	供带盘磁带装挂齿轮 通过卷带盘磁带装挂齿轮传来的动力，移动供带杆底座及导辊，并将磁带环绕于磁鼓。
11.	继动齿轮导动杆 通过磁带装挂继动齿轮，传主凸轮之运动于卷带盘磁带装挂齿轮。

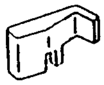
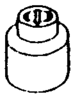
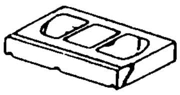
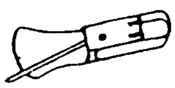
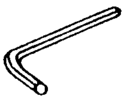
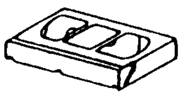
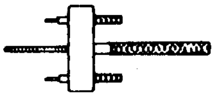
机械部件的调整、更换、装配及清扫

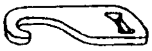
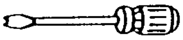
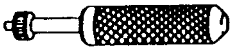
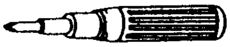
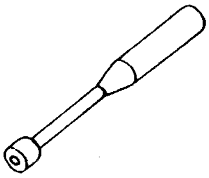
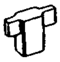
这里我们将为您介绍一些较简单的保养调试方法。这些方法与需要特殊的仪器和工具的复杂检修(例如, 磁鼓的组装或更换等) 相比更为容易简单。

我们相信, 下表所列便于使用的工具在您为本录象机作定期保养以维持其原有的工作状态中无疑能起很大的作用。

机械部件调整必需的工具

检查修理时, 应准备下列工具才能顺利进行修理工作。

序号	工具名称	零件编号	编码	形状	备注
1	带盘高度调整工具	JiGRH0002	BR		用于检查、调整带盘高度。
2	主平面调整工具	JiGMP0001	BY		
3	音频/控制磁头倾斜调整工具	JiGACH-F18	BU		用于设定音频/控制磁头的倾斜角度。
4	转矩测量计(90克)	JiGTG0090	CM		用于检查、调整供带轮和卷带轮的转动力矩。
	转矩测量计(1.2公斤)	JiGTG1200	CN		
5	转矩测量计测头	JiGTH0006	AW		
6	盒匣磁带式转矩测量计	JiGVHT-063	CZ		用于检查、调整卷带轮的转动力矩以及测量磁带反向张力。
7	张力测量计(300克)	JiGSG0300	BF		分为300克和2.0公斤两量级, 用于张力测量。
	张力测量计(2.0公斤)	JiGSG2000	BS		
8	六角扳手(0.9毫米)	JiGHW0009	AE		用于松弛或紧固特制六角螺栓。
	六角扳手(1.2毫米)	JiGHW0012	AE		
	六角扳手(1.5毫米)	JiGHW0015	AE		
9	校正用磁带(PAL制式)	VROCPSV	CD		专用于机器的电路微调。
	校正用磁带(NTSC制式)	VROATSV VRONBZGS	CD		
10	磁鼓更换工具	JiGDT-0001	BG		用于更换装置的上部磁鼓。

序号	工具名称	零件编号	编号	形状	备注
11	张力测量计接续器	JiGADP003	BK		用于张力测量计。
12	专用螺丝刀	JiGDRiVERH-4	AP		用于导辊高度和X位置的调整。
13	张力带及张力板调整工具	JiGDRiVER-6	BM		用于张力带和张力板的调整。
14	扭转改锥（5公斤）	JiGTD1200	CB		用于扭转树脂制工具。标准扭转值为5公斤。
15	套管改锥	JiGDRiVER110-7	AS		用于音频／控制磁头的高度调整。
		JiGDRiVER110-4	AV		用于定位导杆的高度调整。
16	反转导杆高度调整工具	JiGRVGH-F18	BU		用于反转导杆的高度调整。

机械部件的定期保养期间

为保持机械部件的正常工作性能，务必按下表定期进行维护保养。

保养间隔 部件名称	每500小时	每1000小时	每1500小时	每2000小时	可能出现症状	备　　注
导辊组件	□	□	□	○	水平噪音线出现，磁头不时被磁带缠绞。	如发生不正常的旋转或显著的摇摆，就需更换该部件。
供带阻抗滚子	□	□	□	○		
供带阻抗滚子(内侧)		□		□		用高级异丙醇擦拭。
供带阻抗滚法兰	□	□	□	□		用指定清洁剂擦拭与磁带接触部分。
定位导杆	□	□	□	□		
斜　杆	□	□	□	○		
视频磁头(上部磁鼓组件)	□	○□	□	○□	信号/噪声比过小，无彩色表现。	用指定清洁剂擦拭与磁带接触部分。
完全消磁磁头	□	□	□	○	色彩过淡，图象闪跳。	
音频/控制磁头	□	□	□	○	声音太小或者噪音太大。	
下部磁鼓组件	□	□	□	○	再现校正用磁带时，包络线的平坦度不良。	
主导轴直接驱动马达	□	□	□	○	磁带不转，色彩不均。	
紧带轮	□	□	□	○	不走带，磁带松弛。	用指定清洁剂擦拭橡胶与橡胶接触部分。
带盘皮带		□		○	不走带，磁带松弛，快进或倒带时走带不正常。	
装填皮带		□		○	带盒不填入或不退出。	
带盒装填皮带		□		○		
张力带组件				○	图象水平扫描线摆动不稳。	
装填马达				○	带盒不填入或不退出。	
AHC (自动录象磁头除垢器)		○		○		除垢器滚轮部位的磨耗过大时，就需更换该部件。更换时，只要更换录象头除垢器臂组件即可。
带盘座*					见下图说明。	
＊带盘座部件的保养请参见下表。						
供带/卷带盘		□△		△○	不走带，磁带松弛。	用高级异丙醇擦拭。
视频搜索制动杆				○		
惰轮齿轮组件				○	不走带。	
带盘皮带轮		□△		□○		
供带/卷带主制动杆				○	磁带松弛。	

注意：○：部件更换
□：部件清洗(用不起毛的绸布蘸异丙醇擦拭)
△：部件注油(注有标记之部件应该每1000小时用高级轴油点注润滑)

该类型录象机机械部件无法对其转矩、张力值进行调整。如发现所测数值超过或不及规定范围，务必对该部件进行清洗或加以更换。

磁带盒室控制机构的拆卸及安装

●盒室控制机构的拆卸

1.退出磁带盒匣，设机构于出盒状态。

2.从电源插座中拔出电源引线插头。

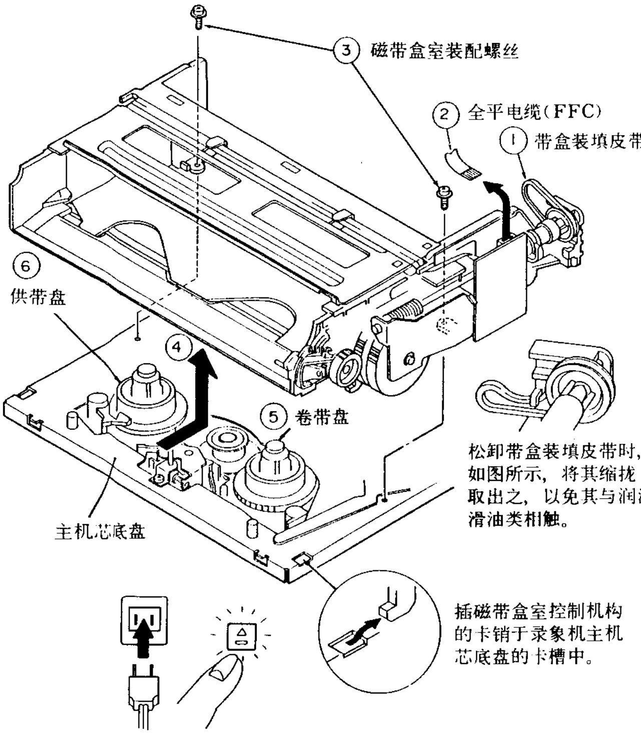
3.按下述步骤的要求顺序进行拆卸。

a)松卸带盒装填皮带①。

b)拆去全平电缆(FFC)②。

c)松去紧固磁带盒室控制机构的两支紧固螺丝③。

d)按箭头④方向移动磁带盒室控制机构，然后将其向上拉出。



松卸带盒装填皮带时，如图所示，将其缩拢取出之，以免其与润滑滑油类相触。

插磁带盒室控制机构的卡销于录象机主机芯底盘的卡槽中。

图1－1

●盒室控制机构的组装

1.在组装磁带盒室控制机构之前，先保持录象机于电源开启状态，按停止键置录象机于停止状态。然后，从电源插座中拔去电源引线插头。(录象机处于出盒状态)。

2.按拆卸步骤的相反顺序进行组装。

注意：

1.在拆卸或组装磁带盒室控制机构之前，先确认将电源引线插头拔出电源插座。

2.拆卸或组装带盒装填皮带时，注意不要让其与润滑油相触。如装填皮带上沾有油渍，务请立即清洗之。

3.拆卸或组装时，如使用带磁螺丝刀，务请注意不要让其触碰音频／控制(A/C)磁头，完全消磁(FE)磁头以及磁鼓。

4.拆卸或组装磁带盒室控制机构时，务请谨慎小心，切勿磕碰其机构，同时注意不要让工具等碰撞导向销、磁鼓等精密度较高的部件。

5.拆卸或组装磁带盒室控制机构时，均务请先将录象机置于出盒状态。

6.组装之后，填装一录象带盒于盒室控制机构之中。(如果其盒室控制机构动作正常，将磁带取出之后，直接对机构相位和盒室控制器进行精调)。

无带盒填人状态下盒室控制机构的机械动作检查

于电源开启状态时，无带盒填入状态也能对盒室控制机构的机械动作进行检查。其要点如下：

1.用手旋转卷带盘⑤(正向和反向两方向)，检查视频搜索倒带以及倒带的动作情况。如果卷带盘不转，带盘感应器动作，以使控制机构移至出盒状态。

2.触按停止(STOP)键后，机构不在其正常停止位置处停止。控制机构便转至出盒状态，然后停止。

3.于再现、视频搜索倒带以及视频搜索快进状态时，触按停止(STOP)键后，供带盘⑥仍继续旋转数秒钟，以减少控制机构移转为出盒状态过程中磁带的松弛量。在这种情况下，用手停住供带盘⑥，同时适当旋转卷带盘⑤，这样能缩短其动作时间。

蜗轮机构的更换

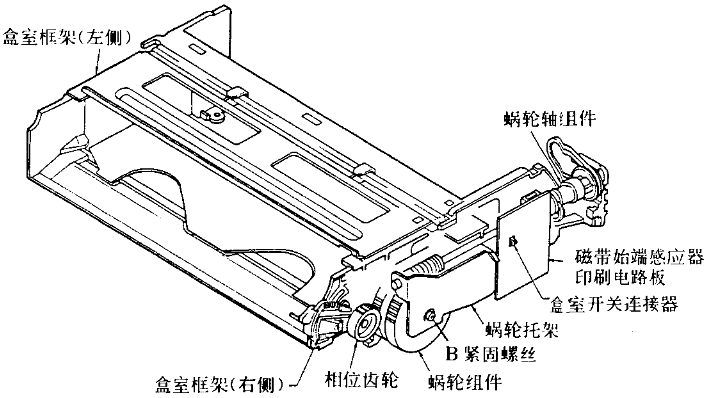


图1－2

● 蜗轮机构的拆卸

1. 松焊磁带始端感应器印刷电路板上的盒室开关连接器的连接，取下之。

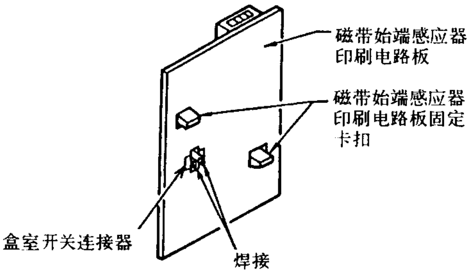

磁带始端感应器印刷电路板
磁带始端感应器印刷电路板固定卡扣
盒室开关连接器
焊接

图1－3

2. 按下图箭头所示方向按住磁带始端感应器印刷电路板固定卡扣，向上提起其印刷电路板。

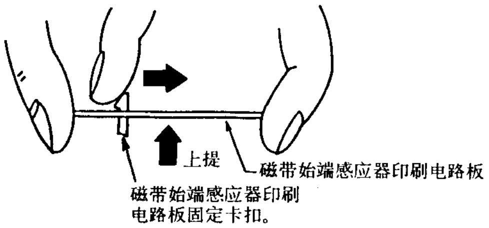

上提
磁带始端感应器印刷电路板
磁带始端感应器印刷电路板固定卡扣。

图1－4

3. 松卸B紧固螺丝（一支），取去蜗轮托架。

   注： 这时蜗轮轴承极易滑出其位，因此务请小心，勿让轴承落下碰伤。

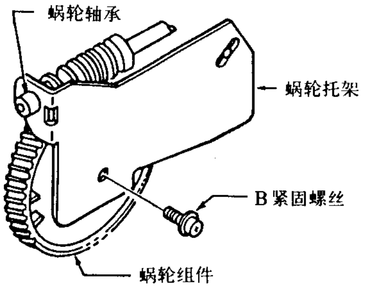

蜗轮轴承
蜗轮托架
B紧固螺丝
蜗轮组件

图1－5

4. 从盒室框架（右侧）整体卸下蜗轮轴组件，皮带轮以及带盒装填皮带。

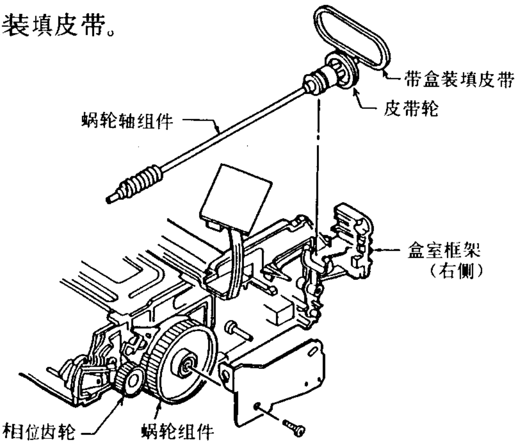

带盒装填皮带
皮带轮
蜗轮轴组件
盒室框架（右侧）
相位齿轮
蜗轮组件

图1－6

5. 置带盒滑填板卡销于蜗轮组件正上方处（图1－7）。（带盒滑填板的夹持器于两处被锁扣，解其锁扣见图1－8所示）。
6. 向上按住转辙杆，沿由纸向外的方向拉出蜗轮组件即可。（见图1－7）。

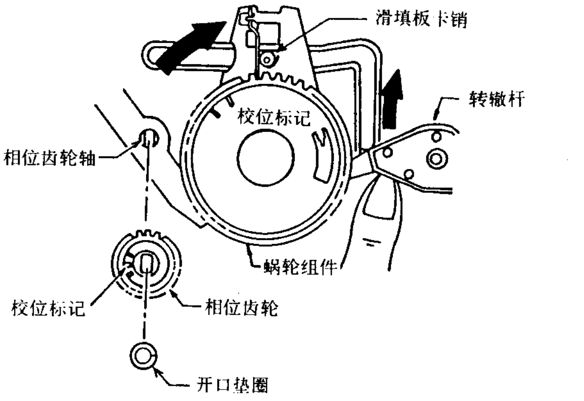

滑填板卡销
转辙杆
校位标记
相位齿轮轴
蜗轮组件
校位标记
相位齿轮
开口垫圈

图1－7

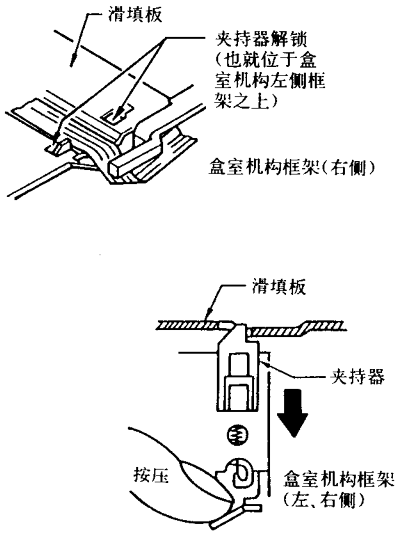

滑填板
夹持器解锁（也就位于盒室机构左侧框架之上）
盒室机构框架（右侧）
滑填板
夹持器
按压
盒室机构框架（左、右侧）

图1－8

● 蜗轮机构的组装

1. 顺时针方向旋转相位齿轮，让带盒滑填板沿带盒插入方向进至其一半位置处。（见1－9）。
2. 将蜗轮齿轮套置于盒室框架（右侧）的蜗轮轴衬上，然后将相位齿轮上的校位标记与蜗轮上的校位标记对齐。之后，取去相位齿轮上的开口垫圈以及相位齿轮，以便蜗轮的安装。

   注： 此时，务请确认滑填板卡销应正好嵌于导动齿轮臂的卡槽中。

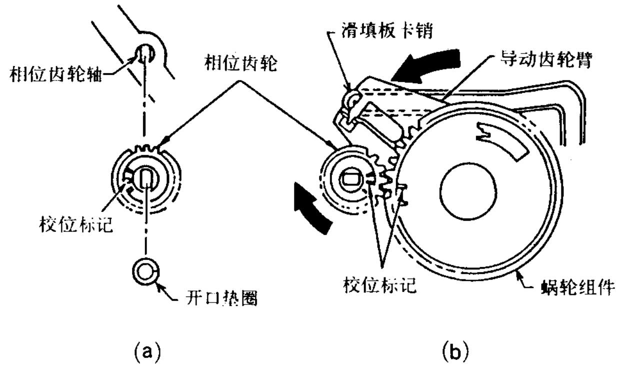

相位齿轮轴
相位齿轮
校位标记
开口垫圈
滑填板卡销
导动齿轮臂
校位标记
蜗轮组件
(a)
(b)

图1－9

3.装套皮带轮于蜗轮轴组件，并套拉好带盒装填皮带。将离合器与离合杆耦合。然后，将其整体就位于盒室框架右侧之上。

注：请切记离合器转辙杆必须处于其正确位置。因为只要其杆稍有偏差，录象机内的机械动作便会发生异常。(见86页有关项目所述)。

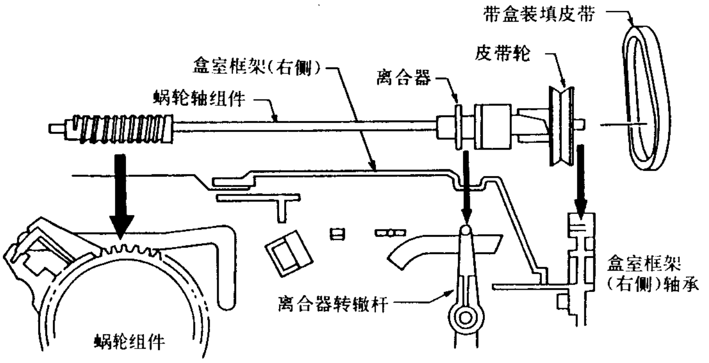

带盒装填皮带
皮带轮
盒室框架(右侧)
离合器
蜗轮轴组件
盒室框架
(右侧)轴承
离合器转辙杆
蜗轮组件

图1－10

4.将蜗轮托架与蜗轮轴组件相接，然后，将其就位于盒室框架(右侧)的蜗轮轴衬上。

注：先插①于其位后，再用螺丝固定②和③。(图1－11)。

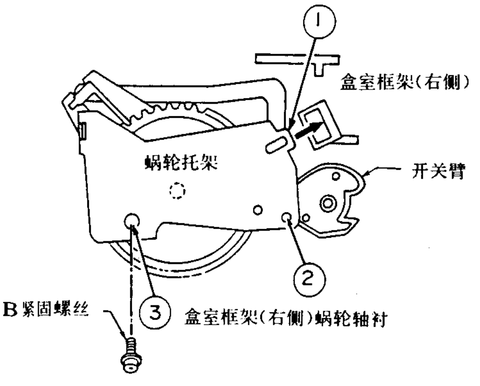

①
盒室框架(右侧)
蜗轮托架
开关臂
②
B紧固螺丝
③
盒室框架(右侧)蜗轮轴衬

图1－11

5.拧紧B紧固螺丝。

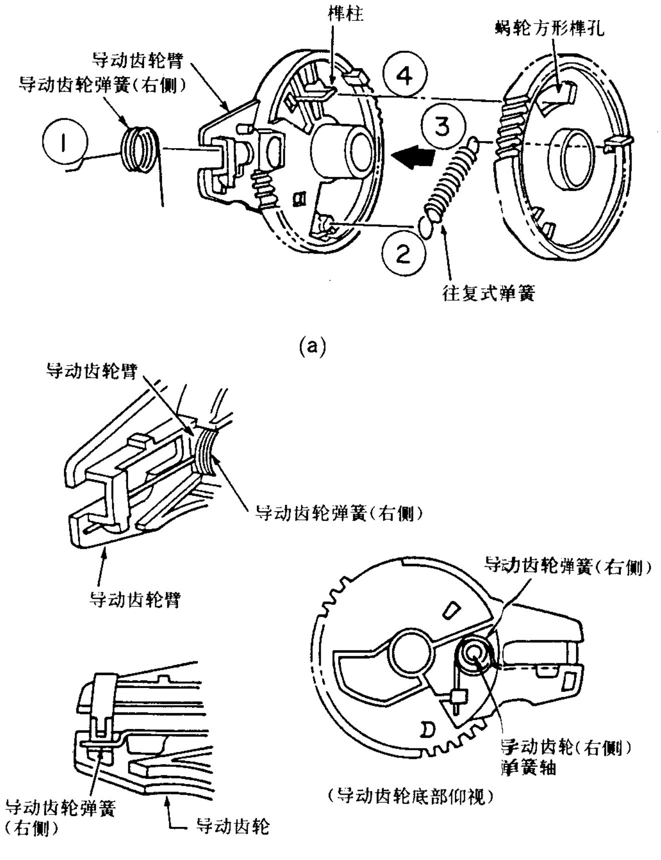
注：B紧固螺丝不得紧固过力(不得大于5.0±0.5kg·cm)，否则，树脂轴承架的螺孔中的螺纹很可能受损失效。

6.将磁带始端感应器印刷电路板就位于盒室框架(右侧)之上。

注：检查其开关连接器是否正确插接于盒室开关安插孔中。

7.最后，用焊锡焊接磁带始端感应器印刷电路引线于盒室开关连接器。

导动齿轮的组装


榫柱
蜗轮方形榫孔
导动齿轮臂
导动齿轮弹簧(右侧)
④
①
③
②
往复式弹簧
导动齿轮臂
导动齿轮弹簧(右侧)
导动齿轮臂
导动齿轮弹簧(右侧)
导动齿轮(右侧)
弹簧轴
(导动齿轮底部仰视)
导动齿轮弹簧
(右侧)
导动齿轮

(a)

(b)

图1－12

1.松放钩挂于导动齿轮(右侧)方孔中的导动齿轮弹簧(右侧)①的梢端。

2.钩挂往复式弹簧一端②于导动齿轮(右侧)内弹簧扣。

3.钩挂往复式弹簧另一端③于蜗轮的弹簧扣。

4.插导动齿轮(右侧)榫柱④于蜗轮方形榫孔之中。逆时针方向旋转蜗轮少许，利用往复式弹簧的作用，让蜗轮同轴嵌套于导动齿轮(右侧)。

带盒装填皮带的更换

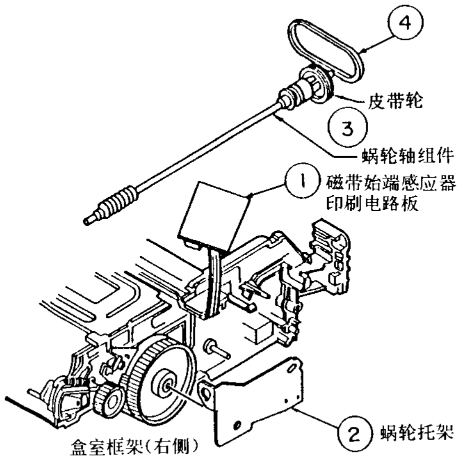

④
皮带轮
③
蜗轮轴组件
① 磁带始端感应器印刷电路板
② 蜗轮托架
盒室框架(右侧)

图1－13

1.卸去定位于盒室框架(右侧)的磁带始端感应器印刷电路板①以及蜗轮托架②。

2.卸去蜗轮轴组件③。

3.更换一新的带盒装填皮带④。

注意：

1.切勿过力拧紧蜗轮托架板上的B紧固螺丝。其规定紧固力矩为5.0±0.5kg·cm。

2.更换完毕，检查皮带上是否沾有润滑油。如沾有之，则须用规定清洗剂清洗其油渍。

3.检查离合器转辙杆是否就位于其规定位置，其机械动作是否正常。

离合器转辙杆的检查

● 转辙杆的检查

将盒室机构从主机芯底盘拆离或更新安置于主机芯底盘时，均须先置其于出盒状态。

检查盒室机构中诸如离合器转辙杆类的每个部件均就位于其规定之处，否则，便很可能引起机械误动作的产生。

注意：

盒室机构各部件之规定位置如图1－14所示。

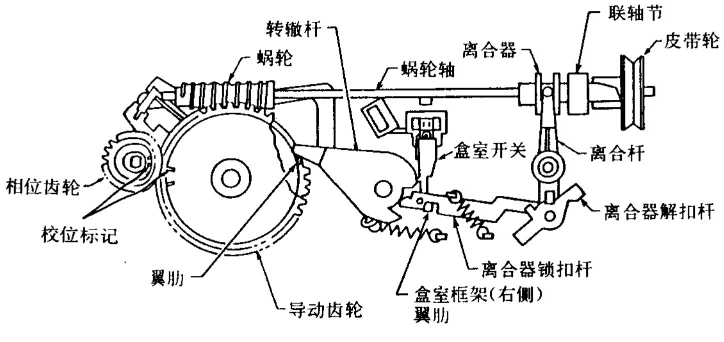
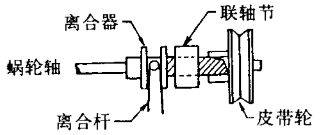

转辙杆
蜗轮
蜗轮轴
离合器
联轴节
皮带轮
盒室开关
离合杆
相位齿轮
校位标记
离合器解扣杆
翼肋
离合器锁扣杆
导动齿轮
盒室框架(右侧)翼肋

图1－14

1.首先，先检查离合器转辙杆的梢端是否卡扣于导动齿轮(右侧)的翼肋。

2.然后检查盒室框架(右侧)的翼肋是否卡嵌于离合器锁扣杆的凹槽中。

3.最后，检查离合杆与离合器的位置关系以及离合器与皮带轮的位置关系均是否符合图1－15所示的规定要求。


离合器
联轴节
蜗轮轴
离合杆
皮带轮

检查离合器是否通过其联轴节与皮带轮啮合。

图1－15

● 转辙杆的重新设置

离合器、或离合器转辙杆和离合器锁扣杆处未锁扣状态时，请按下述步骤重新设置之。

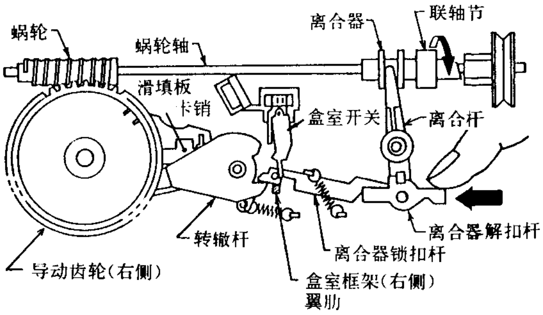

蜗轮
蜗轮轴
离合器
联轴节
滑填板
卡销
盒室开关
离合杆
离合器解扣杆
转辙杆
离合器锁扣杆
导动齿轮(右侧)
盒室框架(右侧)翼肋

图1－16

1.按图1－16中旋转箭头所示方向(顺时针)旋转联轴节，移动带盒滑填板，直至滑填板卡销移至滑填板凹槽底部为止(带盒填装状态)。

注：带盒滑填板装有一锁扣装置。移动此滑填板时，应先解除位于盒室框架(左侧和右侧)之上的锁扣。

2.滑填板移至图1－16所示位置后，用手指沿图中直线箭头所示方向按压离合器解扣杆，让离合器锁扣杆紧扣盒室框架(右侧)的翼肋。

3.然后，再逆时针方针旋转联轴节，让带盒滑填板上升至带盒插入口平面，同时往复式弹簧处于张拉状态为宜。

注：滑填板移至带盒插入口平面时，设有锁扣该滑填板之必要。

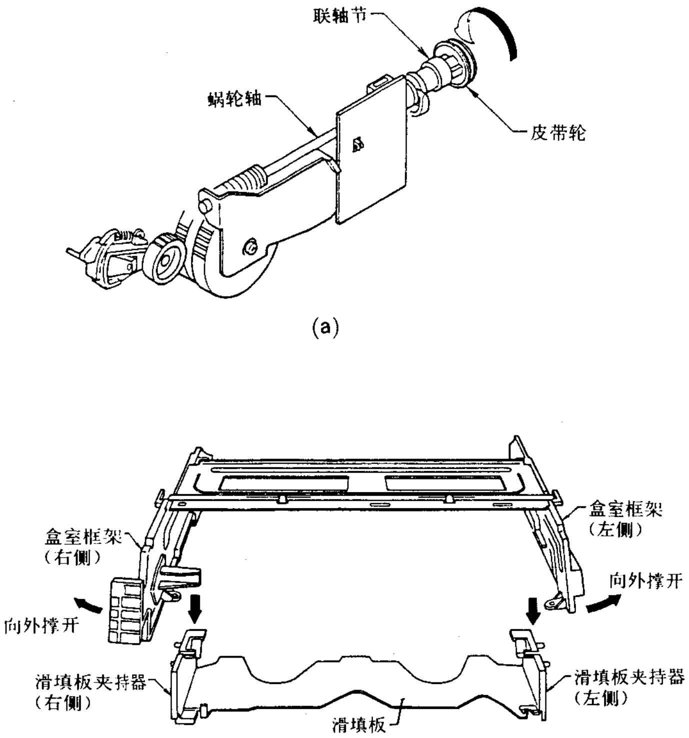
解扣杆的拆卸和组装

●解扣杆的拆卸

1.将滑填板降至带盒填入就位状态之位置。(顺时针旋转蜗轮轴上的联轴节，让滑填板下移)。

注：移动滑填板前，先解除其锁扣。

2.用手稍微撑开盒室框架两侧(左侧和右侧)，让滑填板两侧夹持器(左侧和右侧)的销笋脱离盒室框架两侧的榫孔。


联轴节
蜗轮轴
皮带轮
盒室框架
(右侧)
盒室框架
(左侧)
向外撑开
向外撑开
滑填板夹持器
(右侧)
滑填板夹持器
(左侧)
滑填板

(a)

(b)

图1－17

3.上提滑填板夹持器(右侧)2毫米左右，用一尖头螺丝刀顶压夹持器上两支锁键，让滑填板脱离夹持器。这时，务请注意不要损伤其锁键。

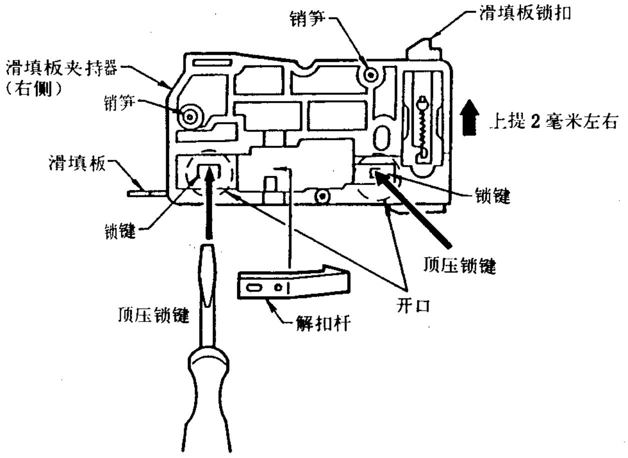

销笋
滑填板锁扣
滑填板夹持器
(右侧)
销笋
上提2毫米左右
滑填板
锁键
锁键
顶压锁键
顶压锁键
开口
解扣杆

图1－18

4.从滑填板夹持器(右侧)上取下解扣杆。

●解扣杆的组装

1.按拆卸解扣杆步骤的相反顺序进行组装。(见图1－17和图1－18)。

2.将解扣杆组件就位于滑填板夹持器(右侧)。

3.下移滑填板，以使滑填板夹持器(右侧)上的两支锁键与滑填板上的两个开口对齐。

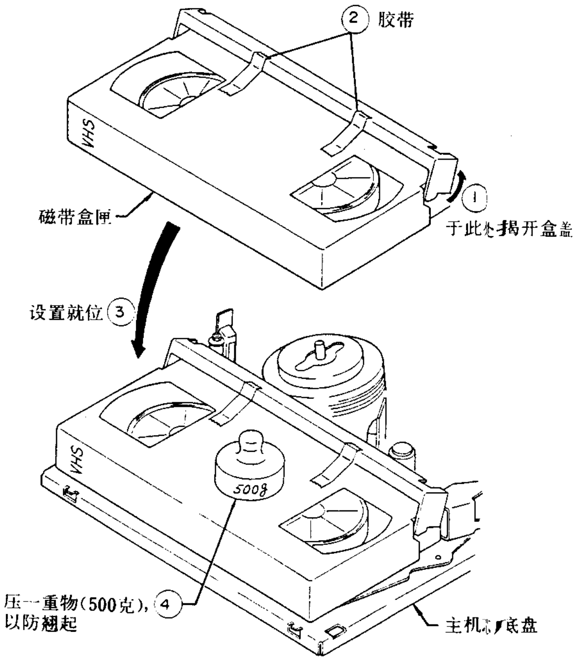
4.用手稍微撑开盒室框架两侧，将滑填板两侧夹持器(右侧和左侧)的销笋分别扣入盒室框架(右侧和左侧)的榫孔中。

注：检查滑填板两侧夹持器(右侧和左侧)的销笋是否分别正确地扣入盒室框架两侧(右侧和左侧)的榫孔中；导动齿轮臂是否充分地与滑填板夹持器啮合。

5.逆时针方向旋转联轴节，让带盒滑填板升至带盒插入口平面。

无盒室控制机构的走带测试

1.插电源引线插头于电源插座。
2.开启电源开关。
3.用手打开磁带盒匣端口之盖①。
4.用胶带②张贴之以保持其开盖状态。
5.置其于主机芯中的走带机构。
6.压一重物④于磁带之上，以防盒匣的翘起。
7.作磁带的走带测试。


② 胶带
VHS
磁带盒匣
① 于此处揭开盒盖
设置就位③
VHS
500g
压一重物(500克)，④
以防翘起
主机芯底盘

注：压其重物不得超过500克。

图1－19

带盘座的拆装与高度调整

1.拆去磁带盒室控制机构。

2.设录象机于无带盒填入的再生状态。拔去电源引线插头。

3.置惰轮齿轮于其中心位置(空档位置)。

●供带盘座的拆卸

1.拆下张力带①。(注意：切勿让其弯折扭曲)。

2.松去螺丝ⓐ，拆去供带盘承座组件ⓑ。

3.松去供带盘锁扣以及反向张力杆③。

4.向上直拉供带盘座④，取出之。

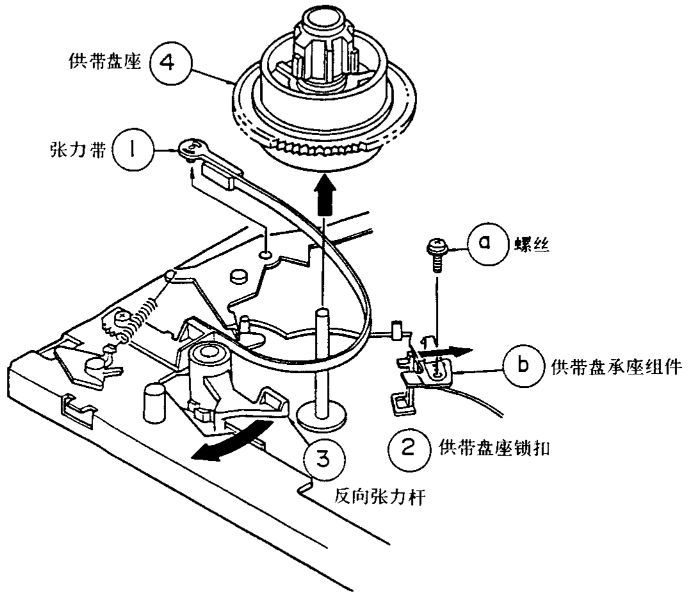
注意：

1.切勿弯折扭曲张力带。

2.检查调整张力杆位置(见第93页有关项目所述)。

3.切勿损坏磕伤供带盘座上的齿轮和惰轮齿轮。

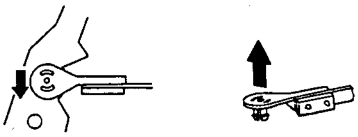
4.拆卸时，应按图中箭头所示方向按压张力带。(见图1-20(b))。


供带盘座 4
张力带 1
a 螺丝
b 供带盘承座组件
3
2 供带盘座锁扣
反向张力杆

(a)

注意：

拆卸时，应按图中箭头所示方向按压张力带，以免使锁扣变形。



(b)

图1-20

●卷带盘座的拆卸

1.松去螺丝ⓒ，拆去卷带盘承座。

2.松去卷带盘座锁扣①。

3.向上直拉卷带盘座②，取出之。

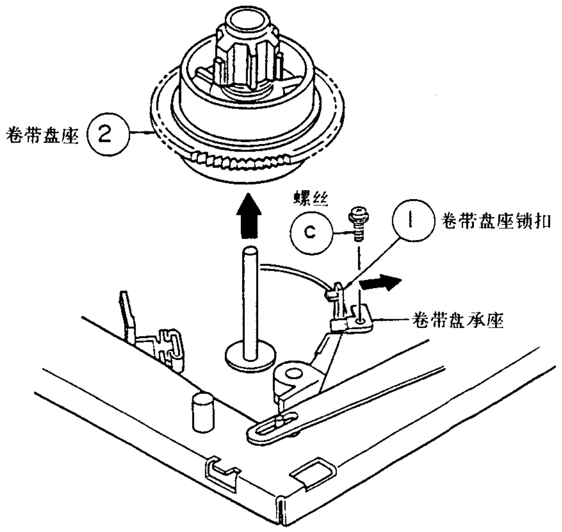

卷带盘座 2
螺丝
c
1 卷带盘座锁扣
卷带盘承座

图1-21

●供带盘座的更换

1.清擦供带盘座轴①，并注油加以润滑。

2.松去供带盘座锁扣②以及反向张力杆③。

3.将准备好的新供带盘座④插套入其轴。

4.环张力带⑤于供带盘座装置安置就位，并将其端插入张力臂之插孔。

5.安置供带盘承座组件ⓑ就位，旋紧其紧固螺丝ⓐ。

注意：

1.安置供带盘座时，务请格外小心，切勿弯折扭曲张力带。

2.使用工具时，切勿磕碰损伤供带盘齿轮，反向张力杆，供带盘座锁扣以及其它部件。

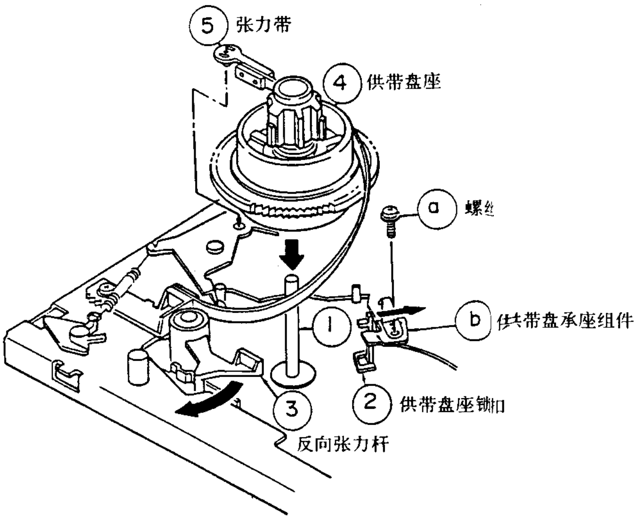

5 张力带
4 供带盘座
a 螺丝
1
b 供带盘承座组件
3
2 供带盘座锁扣
反向张力杆

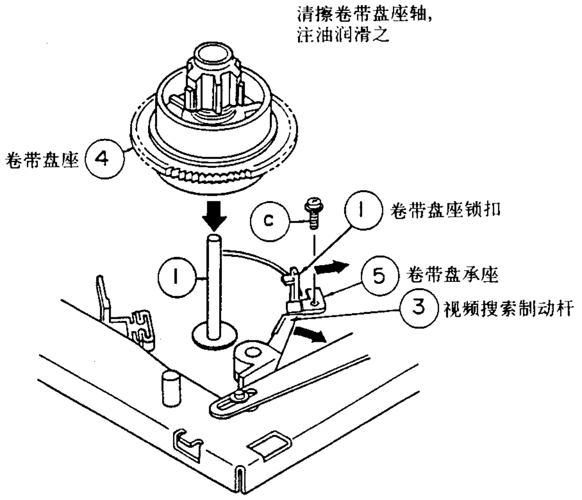
图1-22

●卷带盘座的更换

1.清擦卷带盘座轴①，并注油加以润滑。
2.松去卷带盘座锁扣②以及视频搜索制动杆③。
3.将准备好的新卷带盘座④插套入其轴。
4.安置卷带盘承座⑤就位，旋紧其紧固螺丝ⓒ。

注意：

务请小心谨慎，切勿碰伤视频搜索制动杆。


清擦卷带盘座轴，
注油润滑之
卷带盘座 ④
ⓒ
① 卷带盘座锁扣
①
⑤ 卷带盘承座
③ 视频搜索制动杆

用一尖头螺丝刀按图中所示箭头方向松开卷带盘座锁扣及视频搜索制动杆，使卷带盘座更容易安置。

图1－23

＊带盘座更换之后，须检查调试视频搜索倒带时的反向张力(见第92页)，以及其制动力矩(见第94页)。

●带盘高度的检测和调整

注意：

将主平面板设置于主机芯，注意切勿磕碰磁鼓（见图1－24所示)。

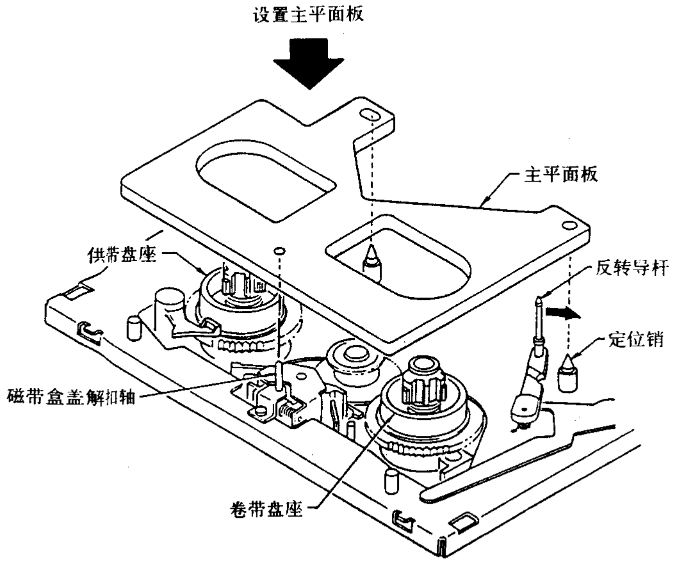

设置主平面板
主平面板
供带盘座
反转导杆
定位销
磁带盒盖解扣轴
卷带盘座

图1－24

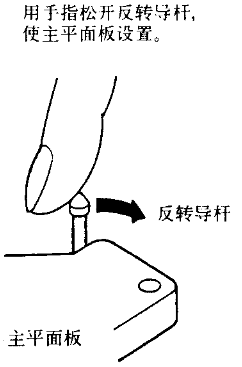

用手指松开反转导杆，
使主平面板设置。
反转导杆
主平面板

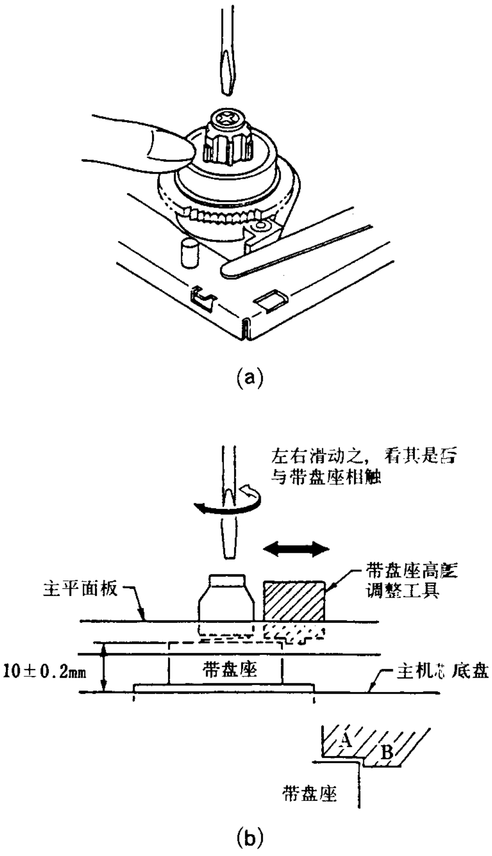
图1－25

1.用手指压住带盘座，同时用一螺丝刀左右转动其带盘（见图1－26(a)所示)，以对其高度进行调整。

2.检查带盘座是否低于图示A所示位置而高于B所示位置。如果所测高度不在A B两位置间的要求范围内，则须通过旋转高度调整螺丝对其高度进行调整。(见图1－26(b)所示)。

注意：

带盘座只要一经更换，就必须对其进行高度的检测和调整。


左右滑动之，看其是否
与带盘座相触
主平面板
带盘座高度
调整工具
10±0.2㎜
带盘座
主机芯底盘
A
B
带盘座

(a)

(b)

图1－26

快进状态时卷带转矩的检测和调整

● **拆去磁带盒室控制机构**

● **转矩测量计的设置**

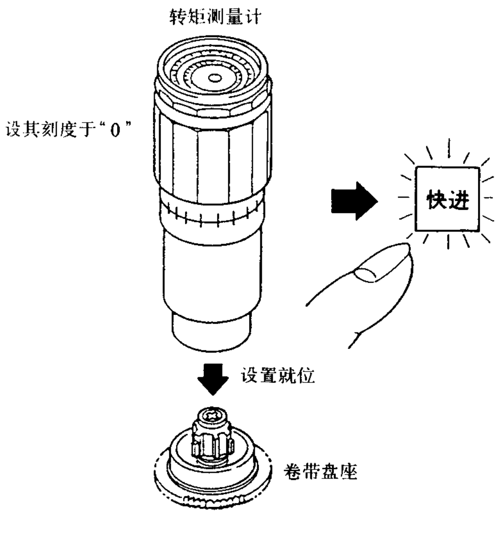

转矩测量计
设其刻度于"0"
快进
设置就位
卷带盘座

图1－27

● **快进转矩的检测**

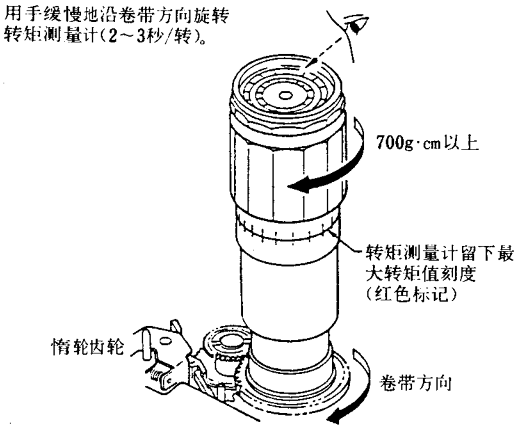

用手缓慢地沿卷带方向旋转转矩测量计(2～3秒/转)。
700g·cm以上
转矩测量计留下最大转矩值刻度(红色标记)
惰轮齿轮
卷带方向

图1－28

● **快进转矩的调整**

1.如果所测快进卷带转矩超出或不及规定值范围，则需用清洗液清擦主导轴直接驱动马达皮带轮，带盘皮带及其皮带轮。然后，再测量之。

2.如果清擦后所测快进卷带转矩仍不符规格要求，则需更换带盘皮带。

注意：

1.设置及计测时，须用手向下按住转矩测量计，以免卷带盘的旋转甩飞安置于其上的转矩测量计。

2.作卷带转矩检测时，不宜让带盘座锁扣时间过长。

倒带状态时卷带转矩的检测和调整

● **拆去磁带盒室控制机构**

● **转矩测量计的设置**

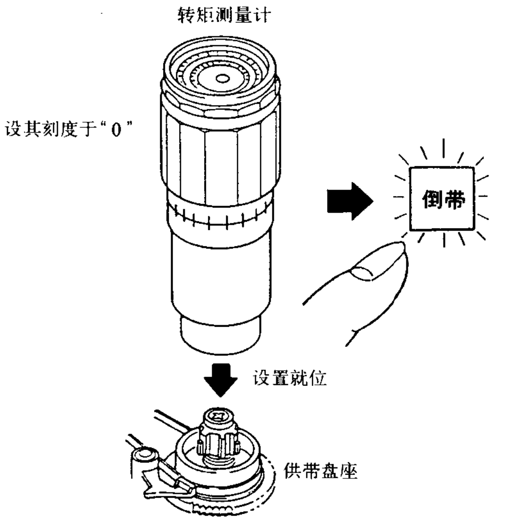

转矩测量计
设其刻度于"0"
倒带
设置就位
供带盘座

图1－29

● **倒带转矩的检测**

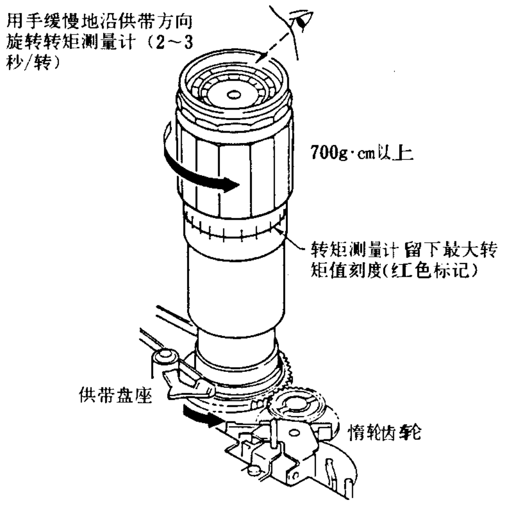

用手缓慢地沿供带方向旋转转矩测量计（2～3秒/转）
700g·cm以上
转矩测量计留下最大转矩值刻度(红色标记)
供带盘座
惰轮齿轮

图1－30

● **倒带转矩的调整**

1.如果所测倒带转矩超出或不及其规定值范围，则需用清洗液清擦主导轴直接驱动马达皮带轮，带盘皮带及其皮带轮。然后，再测量之。

2.如果清擦后所测倒带转矩仍不符合规格要求，则需更换带盘皮带。

注意：

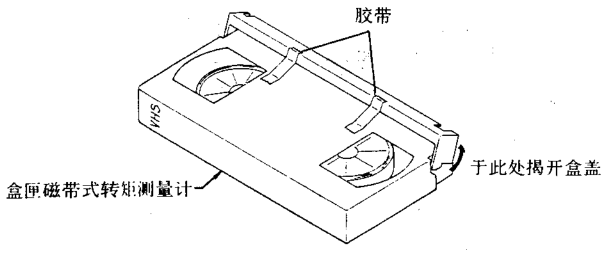
1.设置及计测时，须用手向下按住转矩测量计，以免卷带盘的旋转甩飞安置于其上的转矩测量计。

2.作卷带转矩检测时，不宜让带盘座锁扣时间过长。

再现状态时卷带转矩的检测和调整

1.拆去磁带盒室控制机构。

2.用手揭开盒匣磁带式转矩测量计端口盒盖，用胶带张贴之以保持其开盖状态。


胶带
于此处揭开盒盖
盒匣磁带式转矩测量计
VHS

填装盒匣磁带式转矩测量计于位

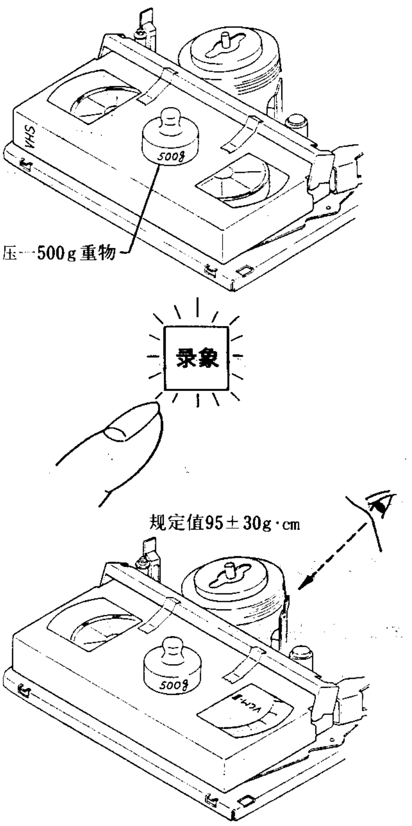

VHS
500g
压一500g重物
录象
规定值95±30g·cm
500g
VH-1

图1—31

● 再现卷带转矩的检测

1.检查所测值是否于95±30g·cm的规定范围内。

2.由于带盘旋转的不均匀性，所测转矩值有可能产生波动现象。这时应取波动值的中心值为其测定值。

3.触按录象键(REC)，置录象机为EP方式录象状态，检查这时的卷带转矩是否满足上述要求。

● 再现卷带转矩的调整

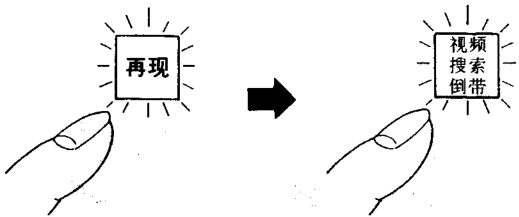
如果所测再现卷带转矩超出或不及其规定值范围，则需更换卷带盘座。

注：压一重物于测量计之上，以防其翘起。

视频搜索倒带状态时卷带转矩的检测和调整

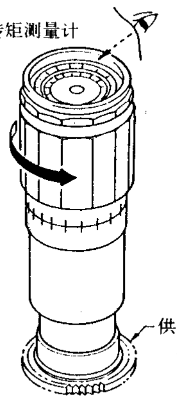
● 拆去磁带盒室控制机构

● 视频搜索倒带转矩的检测



触按再现键(PLAY)，置录象机于再现状态。

触按视频搜索倒带键(VSR)，置录象机于视频搜索倒带状态。



置转矩测量计于供带盘座之上，逆时针方向缓慢地旋转之（2～3秒/转），检查所测转矩值是否于170±40g·cm的规定范围内。

图1—32

注意：

应将转矩测量计牢固地安置于供带盘座之上，否则，所测值并非真实。

● 视频搜索倒带转矩的调整

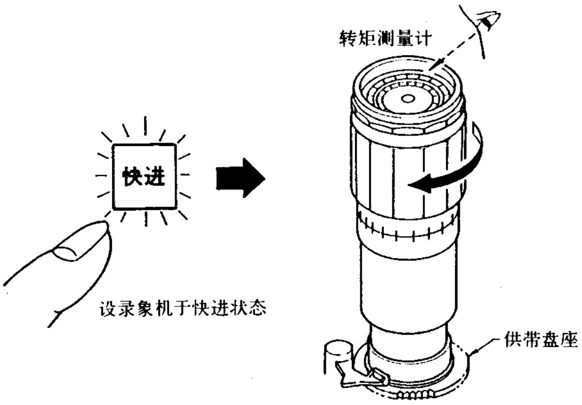
如果所测视频搜索倒带状态时的卷带转矩超出或不及其规定值范围，则需更换卷带盘座。

注意：

由于供带盘旋转的不均匀性，所测转矩值有可能产生波动现象。这时应取波动值的中心值为其测定值。

快进状态时的反向张力的检测

- **拆去磁带盒室控制机构**
- **检测反向张力**


转矩测量计
快进
设录象机于快进状态
供带盘座

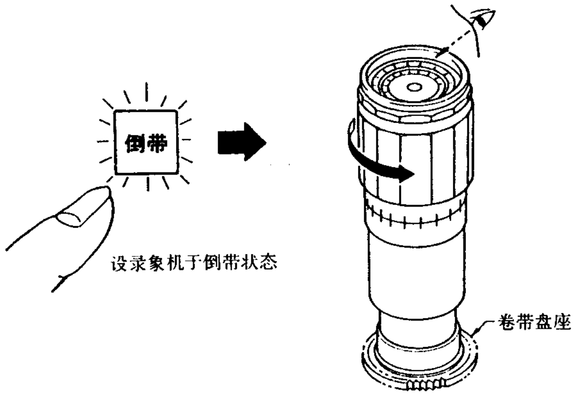
置转矩测量计于供带盘座之上，顺时针方向缓慢地旋转之（2～3秒/转），检查所测转矩值是否于15±5g·cm的规定范围内。

图1－33

注意：
应将转矩测量计牢固地安置于供带盘座之上，否则，所测值并非真实。

倒带状态时反向张力的检测

- **拆去磁带盒室控制机构**
- **检测反向张力**


倒带
设录象机于倒带状态
卷带盘座

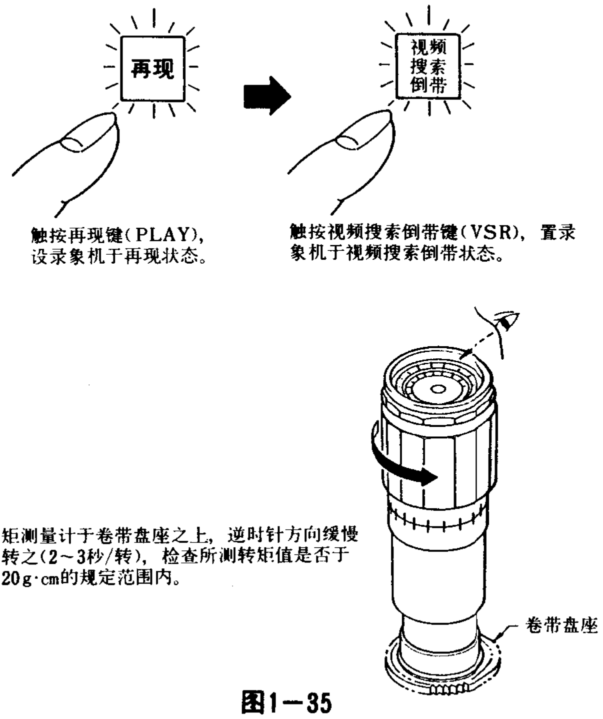
置转矩测量计于卷带盘座之上，逆时针方向缓慢地旋转之（2～3秒/转），检查所测转矩值是否于15±5g·cm的规定范围内。

图1－34

注意：
应将转矩测量计牢固地安置于卷带盘座之上，否则，所测值并非真实。

视频搜索倒带状态时反向张力的检测

- **拆去磁带盒室控制机构**
- **检测反向张力**


再现
视频搜索倒带
卷带盘座

触按再现键（PLAY），设录象机于再现状态。

触按视频搜索倒带键（VSR），置录象机于视频搜索倒带状态。

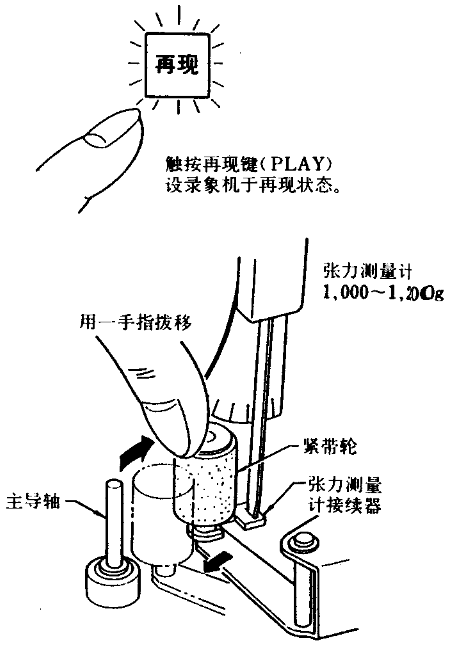
置转矩测量计于卷带盘座之上，逆时针方向缓慢地旋转之（2～3秒/转），检查所测转矩值是否于45±20g·cm的规定范围内。

图1－35

注意：
应将转矩测量计牢固地安置于卷带盘座之上，否则，所测值并非真实。

紧带轮紧带压力的检测

- **拆去磁带盒室控制机构**


再现
张力测量计
1,000～1,200g
用一手指拨移
紧带轮
张力测量计接续器
主导轴

触按再现键（PLAY）设录象机于再现状态。

图1－36

1.用一手指拨移紧带轮，使之与主导轴分离。
2.通过套挂张力测量计接续器将张力测量计设置于紧带轮轴之上。
3.慢慢放松施于手指的压力，让紧带轮渐渐靠拢主导轴。在紧带轮与主导轴相触的瞬间，测量计上的读数就是所要计测的压力值。
4.检查所测压力值是否在1,000～1,200 g的规定范围内。

张力杆位置的检测和调整

●拆去磁带盒室控制机构
●测量计的设置

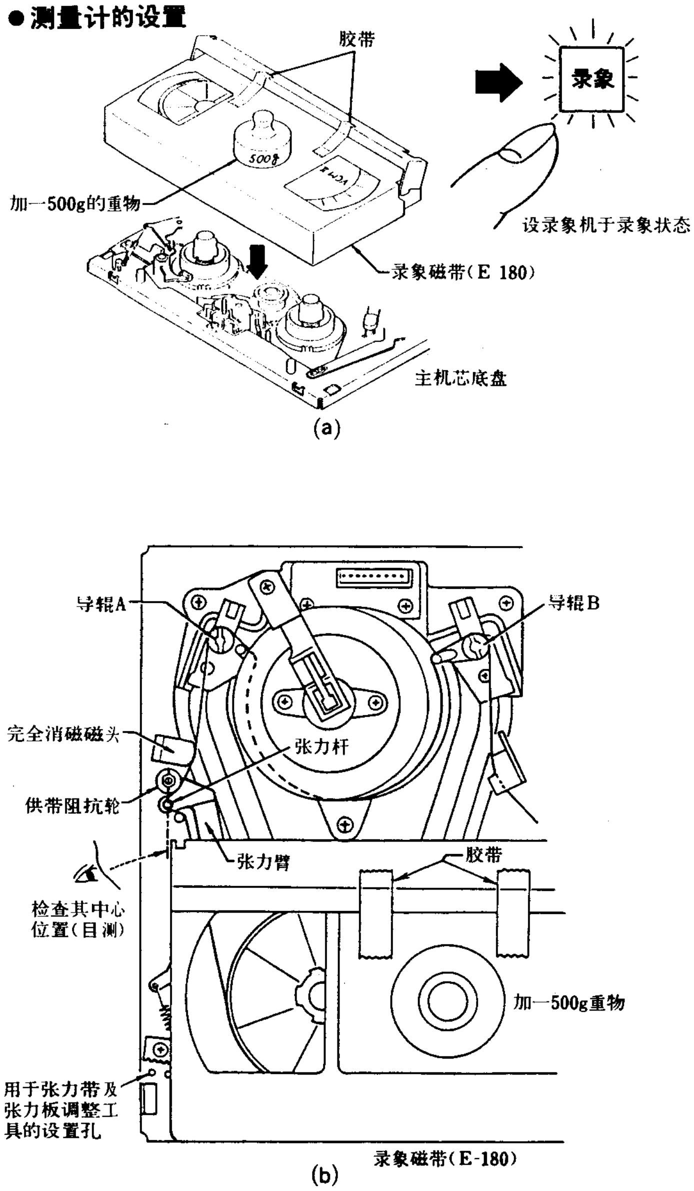

胶带
录象
加一500g的重物
500g
设录象机于录象状态
录象磁带（E 180）
主机芯底盘
(a)
导辊A
导辊B
完全消磁磁头
张力杆
供带阻抗轮
张力臂
胶带
检查其中心位置（目测）
加一500g重物
用于张力带及张力板调整工具的设置孔
录象磁带（E-180）
(b)

图1－37

●张力杆位置的检测

1.导辊（A和B）的作用在于从磁带盒匣中拉出磁带，与此同时，张力杆向左移动，将由导辊拉出的磁带装挂于磁头等工作位置。因此，应于其动作时（拉磁带完全装挂就位时），检查张力杆的位置是否正确。
2.于录象磁带（E－180）始端时，通过目测检查张力杆中心位置是否与供带阻抗轮中心对齐。
3.检查录象磁带终端是否绞带于供带阻抗轮法兰或绕过其之上。
4.设录象机于无带盒装填的视频搜索倒带状态，检查供带盘座是否与张力带分离。

●张力杆位置的调整（录象状态）
张力杆位于供带阻抗轮中心的右侧之场合：
松放紧固螺丝，用张力带及张力板调整工具沿下图箭头所指方向移动张力带调节座，以使张力杆位置移至其规定位置（中心对齐），然后，旋紧紧固螺丝即可。

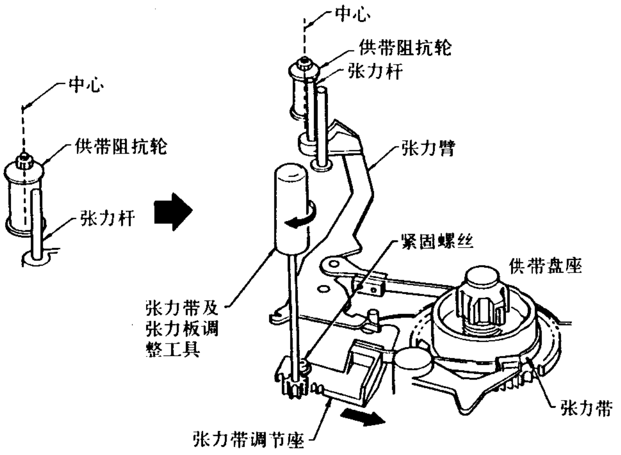

中心
供带阻抗轮
张力杆
中心
供带阻抗轮
张力杆
张力臂
紧固螺丝
供带盘座
张力带及张力板调整工具
张力带
张力带调节座

图1－38

●张力杆位置的调整（录象状态）
张力杆位于供带阻抗轮中心的左侧之场合：
松放紧固螺丝，用张力带及张力板调整工具沿下图箭头所指方向移动张力带调节座，以使张力杆位置移至其规定位置（中心对齐），然后，旋紧紧固螺丝即可。

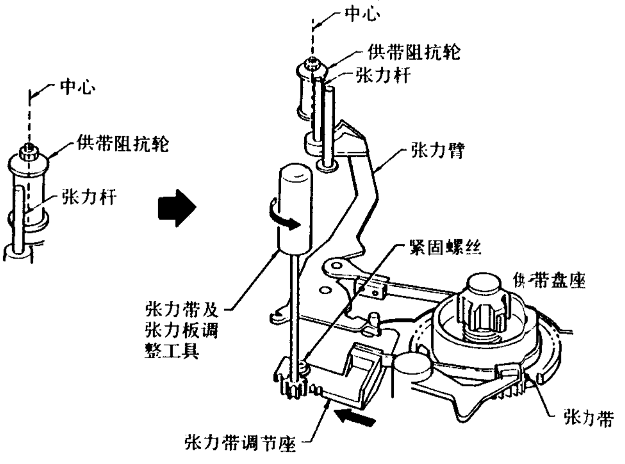

中心
供带阻抗轮
张力杆
中心
供带阻抗轮
张力杆
张力臂
紧固螺丝
供带盘座
张力带及张力板调整工具
张力带
张力带调节座

图1－39

录象/再现状态时反向张力的检测和调整

● 拆去磁带盒室控制机构

● 反向张力的检测

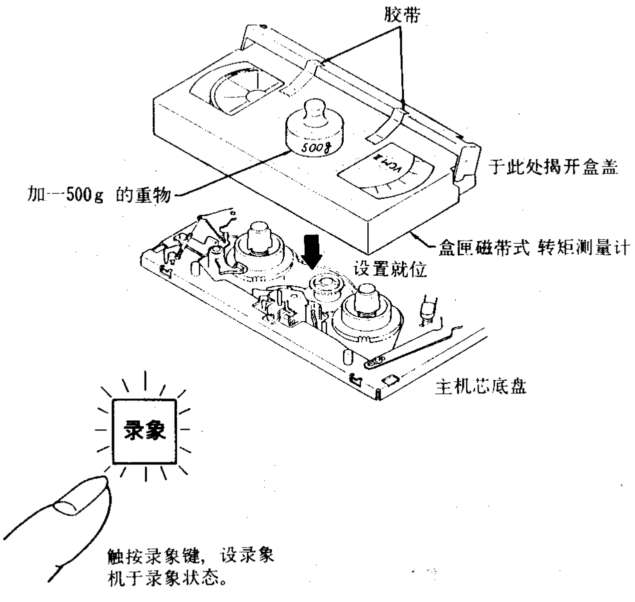

胶带
500g
于此处揭开盒盖
加一500g 的重物
盒匣磁带式 转矩测量计
设置就位
主机芯底盘
录象
触按录象键，设录象机于录象状态。

图1－40

1.将盒匣磁带式转矩测量计设置就位。

2.触按录象键(REC)，设录象机于录象状态。

3.检查所测反向张力值是否在31～36g·cm的规定范围内。

注意：

1.确认走带时，不发生磁带高出定位导杆的现象。

2.确认磁带自始至终不发生松弛或损伤现象。

● 反向张力的调整

1.如果所测反向张力值小于规定值，朝下图孔A方向拨动张力弹簧扣片。

2.如果所测反向张力值大于规定值，朝下图孔B方向拨动张力弹簧扣片。

＊用一小螺丝刀(一字口)，倾斜地插入其轴孔，旋转之以更简单地朝孔A或孔B方向拨动张力弹簧扣片。

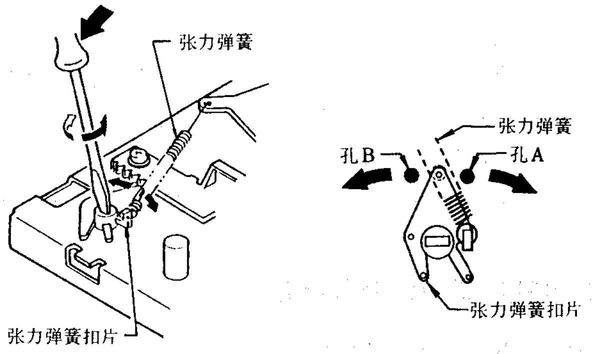

张力弹簧
张力弹簧扣片
张力弹簧
孔B
孔A
张力弹簧扣片

图1－41

制动力矩的检测

● 供带侧制动力矩的检测

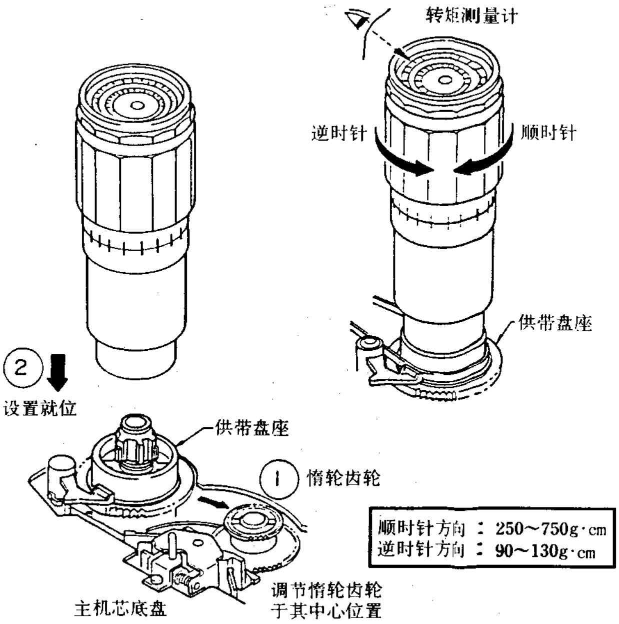

转矩测量计
逆时针
顺时针
供带盘座
②
设置就位
供带盘座
① 惰轮齿轮
顺时针方向 ：250～750g·cm
逆时针方向 ：90～130g·cm
主机芯底盘
调节惰轮齿轮于其中心位置

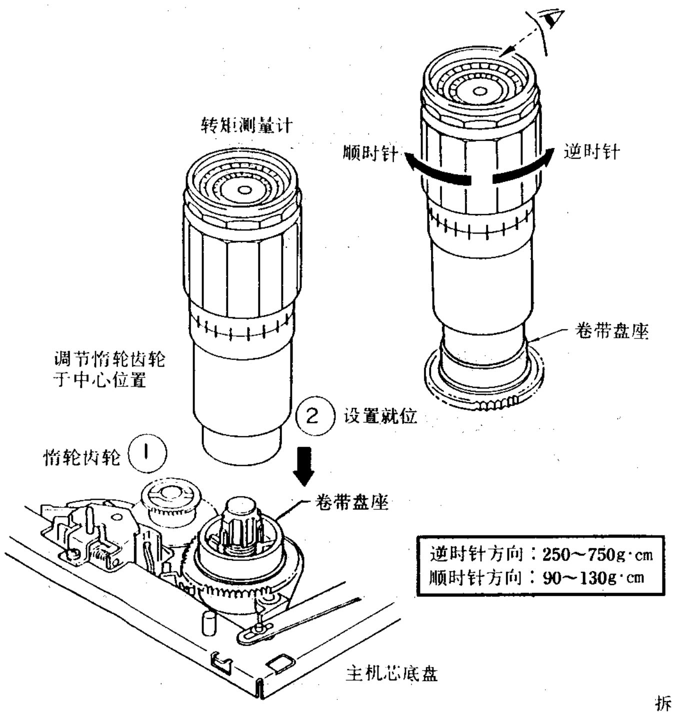
图1－42

1.拆去磁带盒室控制机构。

2.录象机处于快进或倒带状态时，拔去电源引线插头，使之处于全停状态。

3.用手缓慢地沿供带制动的顺时针方向和逆时针方向旋转转矩测量计，使转矩测量计的刻度盘与供带盘以同样的转速旋转。然后，检查所测值是否满足其规定要求：顺时针方向制动力矩＝250～750g·cm; 逆时针方向制动力矩＝90～130g·cm。另外，两者所测值还得满足顺时针方向制动力矩至少等于逆时针方向制动力矩的两倍之规定要求。

●卷带侧制动力矩的检测


转矩测量计
顺时针
逆时针
卷带盘座
调节惰轮齿轮
于中心位置
② 设置就位
惰轮齿轮 ①
卷带盘座
主机芯底盘

逆时针方向：250～750g·cm
顺时针方向：90～130g·cm

图1－43

1. 拆去磁带盒室控制机构。
2. 用手缓慢地沿卷带制动的顺时针方向和逆时针方向旋转转矩测量计，使转矩测量计的刻度盘与卷带盘以同样的转速旋转。然后，检查所测值是否满足其规定要求：逆时针方向制动力矩＝250～750g·cm；顺时针方向制动力矩＝90～130g·cm。另外，两者所测值还得满足逆时针方向制动力矩至少等于顺时针方向制动力矩的两倍之规定要求。

●供带侧以及卷带侧制动力矩的调整

1. 如果供带侧或卷带侧制动力矩所测值不满足其规定要求，则应清擦供带盘座或卷带盘座制动杆及其垫圈，然后重新检测之。
2. 如果清擦后重测制动力矩仍不符规定要求，则需更换主制动器或主制动弹簧。

主制动器的更换

1. 拆下带盘皮带以及带盘装置全平电缆（FFC）。
2. 松去开口垫圈①，分离制动器拔叉。
3. 松去四支螺丝②，拆去卷带盘锁扣架。
4. 向下抽拉拆去带盘组装单元Ⓐ。
5. 先松去开口垫圈③，然后拆去带盘皮带轮。
6. 松去两支螺丝④，取去惰轮组件。
7. 松开反向张力杆弹簧⑤，拆去反向张力杆⑥。（松开带盘底盘的钩扣）。
8. 松开拔叉锁闩⑦，拆去制动器拔叉组件⑧。
9. 松解带盘座锁扣⑬，拆去左右带盘座组件⑨和⑩。
10. 松去主制动臂⑪以及主制动弹簧⑫。

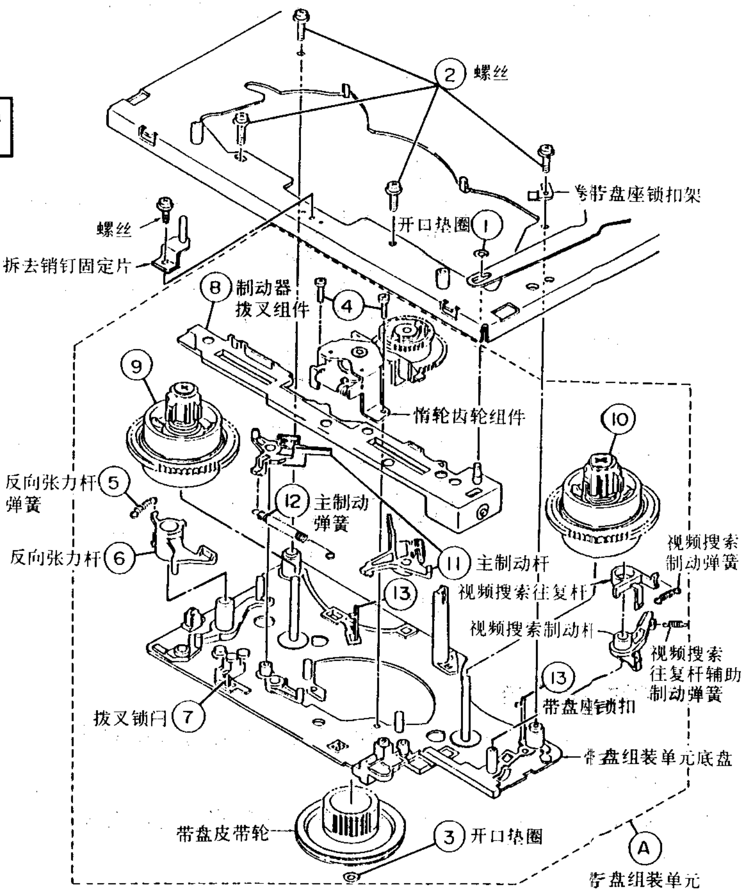

② 螺丝
卷带盘座锁扣架
螺丝
开口热圈 ①
拆去销钉固定片
⑧ 制动器
拔叉组件
④
惰轮齿轮组件
⑨
⑩
反向张力杆 ⑤
弹簧
⑫ 主制动
弹簧
反向张力杆 ⑥
⑪ 主制动杆
视频搜索
制动弹簧
⑬
视频搜索往复杆
视频搜索制动杆
视频搜索
往复杆辅助
制动弹簧
⑬
带盘座锁扣
拔叉锁闩 ⑦
带盘组装单元底盘
带盘皮带轮
③ 开口热圈
Ⓐ
带盘组装单元

图1－44

注意：

主制动器一经更换，则需进行高度的检测与调整（见第89页所述），以及制动力矩的检测（见第94页所述）。

音频/控制(A/C)磁头的更换

1.拆去磁带盒室控制机构。

2.设录象机于出盒状态后，拔去其电源引线插头。

●A/C磁头的拆卸

1.松旋倾斜度调整螺丝①。

2.松去方位角调整螺丝②。

3.松去A/C磁头螺丝③。

4.松焊A/C磁头印刷电路板与A/C磁头的连线。

注意：

1.拆装更换后，必须进行磁带走行检查调整（见第98页所述）。拆装过程中，无论是什么情况，都不得用手或他物触碰A/C磁头。

2.松去A/C磁头螺丝时，注意防止其方位弹簧弹出遗失。

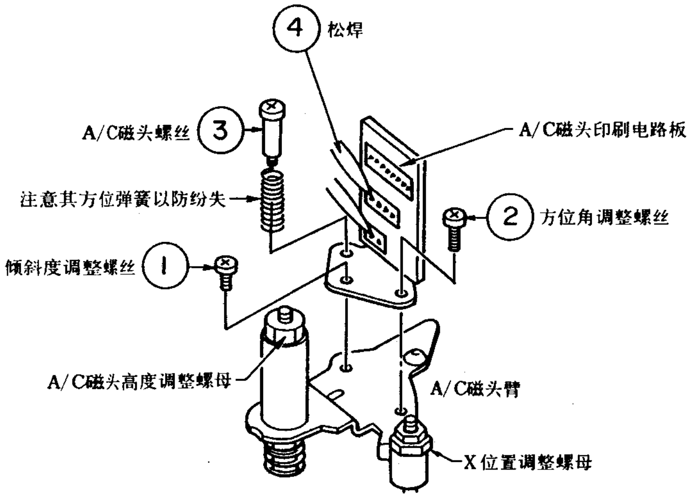

④ 松焊
A/C磁头螺丝 ③
A/C磁头印刷电路板
注意其方位弹簧以防纷失
② 方位角调整螺丝
倾斜度调整螺丝 ①
A/C磁头高度调整螺母
A/C磁头臂
X位置调整螺母

图1—45

●A/C磁头的更换

1.焊接拆卸下的A/C磁头印刷电路板与更换用新A/C磁头的连线。

2.安置A/C磁头组件，使A/C磁头臂与A/C磁头基板大致上相互平行。

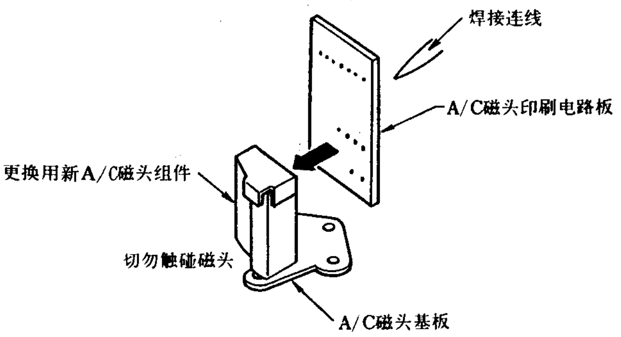

焊接连线
A/C磁头印刷电路板
更换用新A/C磁头组件
切勿触碰磁头
A/C磁头基板

图1—46

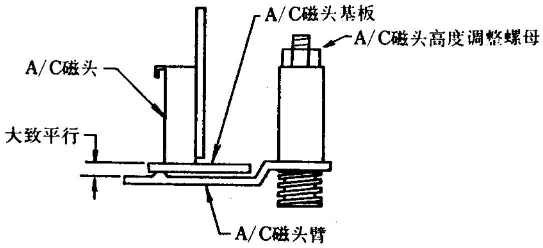

A/C磁头基板
A/C磁头高度调整螺母
A/C磁头
大致平行
A/C磁头臂

图1—47

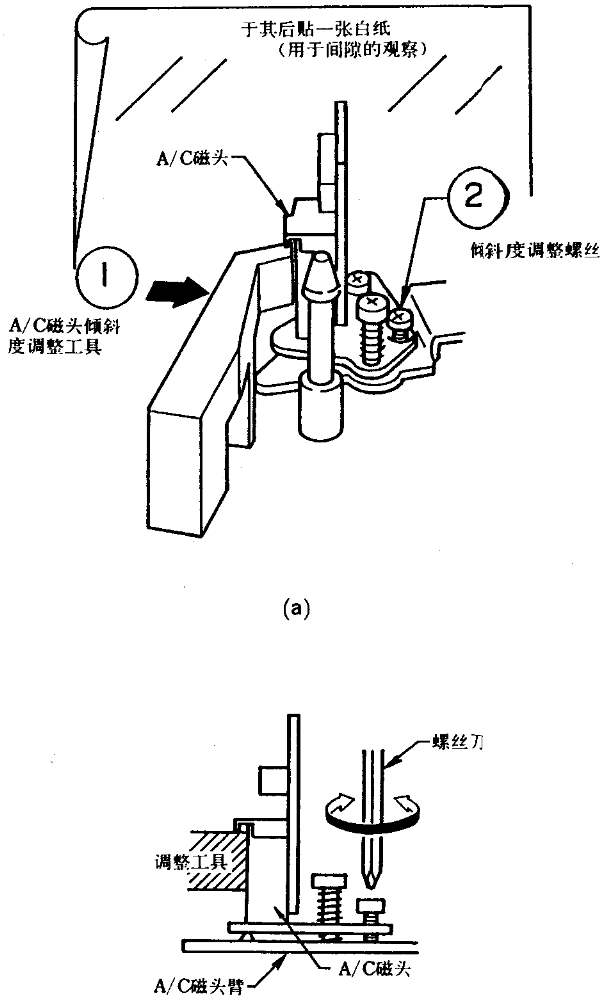
●A/C磁头的调整

〔A/C磁头的倾斜度调整〕

1.设录象机于带盒装填状态。

2.设置A/C磁头倾斜度调整工具①就位。

3.用一螺丝刀缓慢地转动倾斜度调整螺丝②，直至A/C磁头与A/C磁头倾斜度调整工具间的间隙完全消去为止。

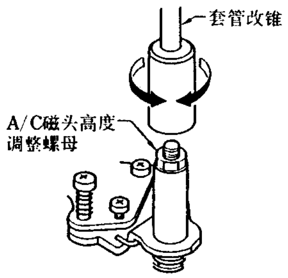

于其后贴一张白纸
（用于间隙的观察）
A/C磁头
②
倾斜度调整螺丝
①
A/C磁头倾斜度调整工具
螺丝刀
调整工具
A/C磁头
A/C磁头臂

(a)

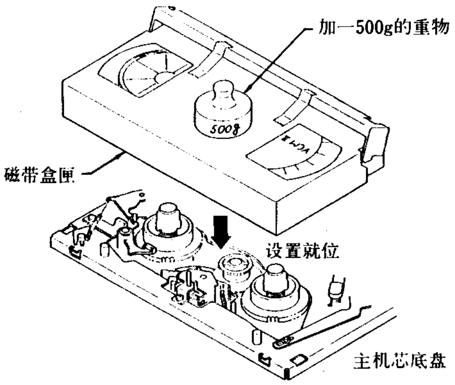
(b)

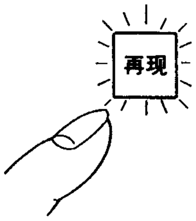
图1—48

〔A/C磁头的高度粗调〕


套管改锥
A/C磁头高度
调整螺母

用专用套管改锥旋转A/C磁头高度调整六角螺母，以对其高度进行粗调，使磁带达至下面所示位置为宜。


加一500g的重物
500g
磁带盒匣
设置就位
主机芯底盘



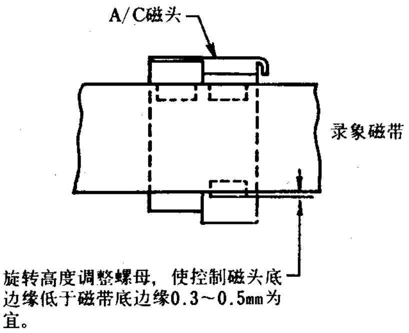
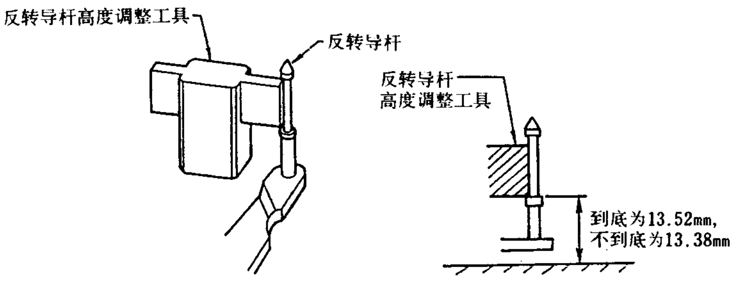

A/C磁头
录象磁带
旋转高度调整螺母，使控制磁头底边缘低于磁带底边缘0.3～0.5mm为宜。

图1－49

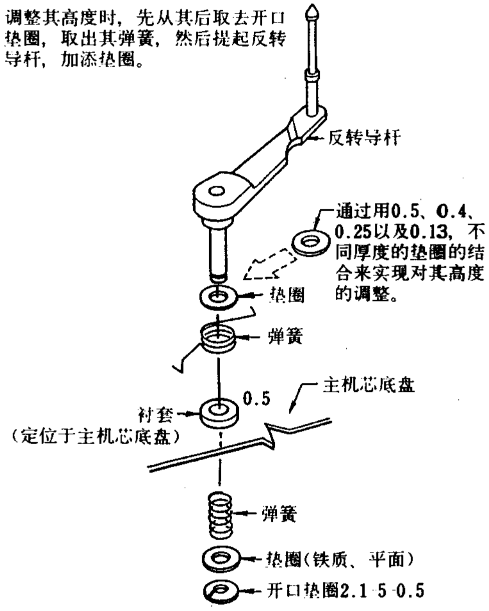
定位导杆以及反转导杆的高度调整

注意：

在进行磁带走行情况的粗调之前，应先用专用工具检查反转导杆的高度是否满足图1-50所示要求。


反转导杆高度调整工具
反转导杆
反转导杆
高度调整工具
到底为13.52mm，
不到底为13.38mm

(a) (b)


调整其高度时，先从其后取去开口垫圈，取出其弹簧，然后提起反转导杆，加添垫圈。
反转导杆
通过用0.5、0.4、0.25以及0.13，不同厚度的垫圈的结合来实现对其高度的调整。
垫圈
弹簧
主机芯底盘
0.5
衬套
（定位于主机芯底盘）
弹簧
垫圈（铁质、平面）
开口垫圈2.1 5 0.5

(c)

图1－50

磁带走行情况的调整

1. 拆去磁带盒室控制机构。
2. 检测调整张力杆的位置。（见第93页）。
3. 检测调整视频搜索状态时的反向张力。（见第92页）。
4. 设定调整A/C磁头倾斜度。（见第96页）。
5. 按下述步骤对磁带走行情况进行粗调。
   a) 连接示波器于再现色彩包络线输出(TP2201)试点。设示波器同步性于外接。这样，再现色彩信号便会被磁头转换脉冲(TP2202)所触发。
   b) 先松开导辊底部的设定螺丝，然后再用导辊调整专用螺丝刀（JIGDRIVERH-4）稍微将其旋至能轻松圆滑地旋动它之程度。（见图1－52）。
   c) 将校正用磁带（单象管图案）盒匣安置于带盘座上，然后，将录象机设定于再现状态。
   （施加一500 g的重物于带盒之上，以防走带时带盒的翘起）。

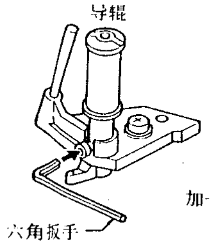


图1－51

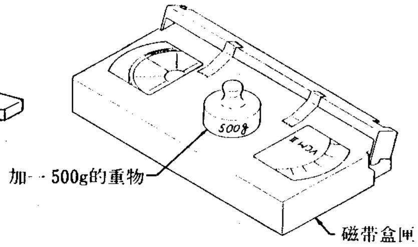


图1－52

   d) 通过触按跟踪键（＋）和（－），使其输出包络线波形从最大调至最小或最小调至最大。这时，观察其输出包络线波形是否达至平坦状态。
   e) 如通过上述调节，其输出包络线波形无法达至平坦状态，则需用导辊调整用螺丝刀，对供带侧和卷带侧的导辊进行粗调，直至输出包络线波形达至平坦。
   f) 用专用螺丝刀旋转A/C磁头倾斜度调整螺丝，使磁带不触碰走带定位导杆的上下边缘。
      1) 磁带缠绕于走带定位导杆上缘：按图1-53(a)所示，顺时针方向旋转倾斜度调整螺丝。
      2) 磁带缠绕于走带定位导杆下缘：按图1-53(b)所示，逆时针方向旋转倾斜度调整螺丝。

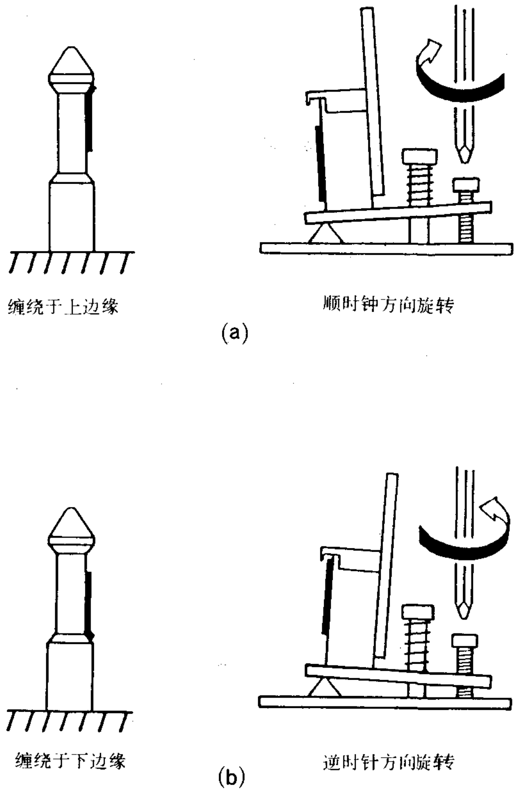


图1－53

注意：

1. 将跟踪调节控制钮设定于其中间位置，然后调整X位置调整螺母，使再现色彩包络线波形达其最大，以便进行磁带走行情况的粗调。
2. 粗调过程中，应特别注意对其输出波形等的观察。

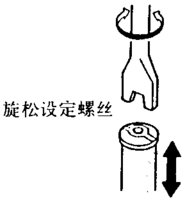


图1－54

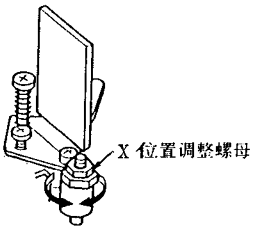


图1－55

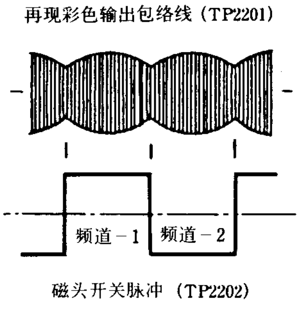


图1－56

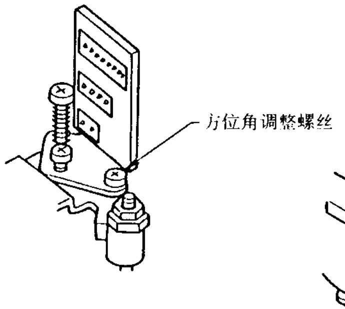


图1－57

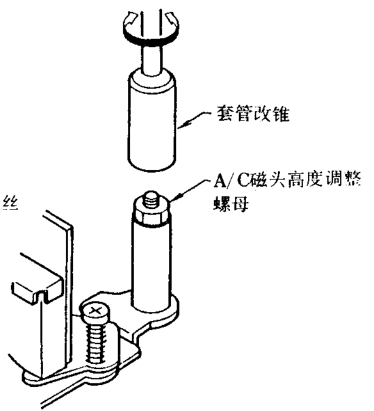


图1－58

6. A/C磁头高度和方位角的调整
   a)连接示波器于音频输出端。
   b)装入校正用磁带、再现之，让其输出6 kHz的音频信号（其视频信号为单象管图形）。用十字口螺丝刀旋转A/C磁头方位角调整螺丝，使示波器上音频输出达其最大。（见图1－57）。
   c)再现校正用磁带，让其输出1kHz的音频信号（其视频信号为彩条图形）。用专用套管改锥缓慢地旋转A/C磁头高度调整螺母，使示波器上音频输出达其最大。
   d)重复步骤b)的调整。
   e)完成上述步骤后，浇粘合剂（LOCTITE）于方位角调整螺丝和高度调整螺母之上，封固之。

7. 走带系统以及X位置的调整。
   a)连接示波器于试点TP2201，作再现彩色包络线输出。设示波器同步于外接。这样，再现彩色信号将被磁头开关脉冲（TP2202）所触发。
   b)再现走带检查用校正磁带。
   c)触按跟踪键的（＋）或（－），使输出包络线波形从最大转至最小，然后又从最小转为最大。用高度调整用螺丝刀调整供带盘侧和卷带盘侧导辊的高度，使输出包络线尽可能达至平坦。
   d)如果走行中的磁带低于或高于螺旋扫描导前，再现彩色输出便会呈现图1－59所示波形。
   e)按第98页步骤5的项目e)要求，调节输出包络线的最大平坦度。

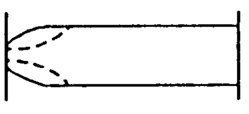
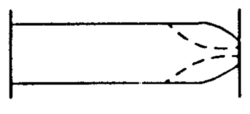
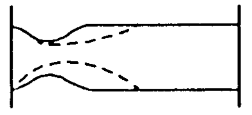
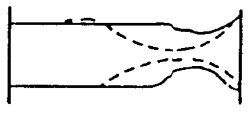
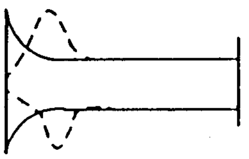
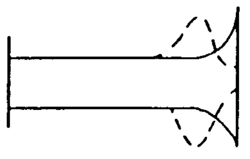
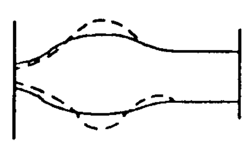
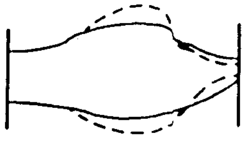
	磁带高于螺旋扫描导前		磁带低于螺旋扫描导前	
	供 带 侧	卷 带 侧	供 带 侧	卷 带 侧
				
				
调 整	顺时针方向旋转供带盘侧导辊（导辊降低），使其输出波形包络线达至平坦。	顺时针方向旋转卷带盘侧导辊（导辊降低），使其输出波形包络线达至平坦。	逆时针方向旋转供带盘侧导辊（导辊升高），让磁带高过螺旋扫描导前。然后，顺时针方向旋转供带盘侧导辊，使其输出波形包络线达至平坦。	逆时针方向旋转卷带盘侧导辊（导辊升高），让磁带高过螺旋扫描导前。然后，顺时针方向旋转卷带盘侧导辊，使其输出波形包络线达至平坦。

图1－59

f)触按跟踪键的(+)或(-)，检查包络线波形的平坦度反应。

g)于磁带卸挂状态，用导辊设定螺丝紧固导辊。

h)再现走带检查用校正磁带，检查输出包络线波形是否发生变化。

8.A/C磁头X位置的调整

a)同时触按跟踪键的(+)和(-)，其意为设其于预设(PRESET)状态。

b)用螺丝刀旋转A/C磁头X位置调整螺母，以调整A/C磁头X位置，以得磁头开关脉冲下侧的最大包络线。

c)调整再现转换点。

d)再现一录象磁带，检查输出包络线波形以及声音的平坦度是否满足要求。

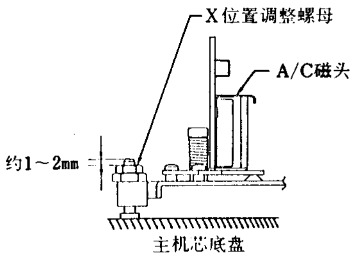

X位置调整螺母
A/C磁头
约1～2mm
主机芯底盘

图1－60

主导轴直接驱动马达的拆卸和组装

1.拆去磁带盒室控制机构。

● **直接驱动马达的拆卸(按图中所示顺号进行)**

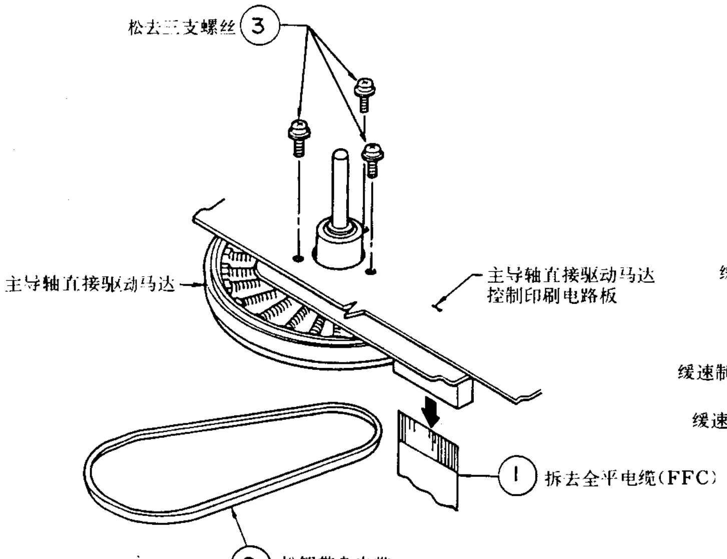

松去三支螺丝③
主导轴直接驱动马达
主导轴直接驱动马达控制印刷电路板
①拆去全平电缆(FFC)
②松卸带盘皮带

图1－61

● **直接驱动马达的组装**

1.将主导轴直接驱动马达就位于主机芯底盘。这时，应注意不要让主导轴磕碰主机芯底盘。然后，用三支螺丝将其紧固。

2.插接全平电缆(FCC)于主导轴直接驱动马达控制印刷电路板。

3.套上带盘皮带。

注意：

1.组装完毕，转动主导轴直接驱动马达，检查其转动是否圆滑。

2.检测，调整其伺服电路。

磁带装挂齿轮组的拆卸和组装

注：下述拆装步骤和要求以4磁头系统录象机为其对象。(2磁头系统录象机无缓速制动弹簧和缓速制动杆等装置)。

1.拆去磁带盒室控制机构。

2.松下带盘皮带。

3.拆下带盘装置单元。

● **齿轮组的拆卸**

注意：

1.拆卸时应小心谨慎，切勿使如图1-62所示卡扣于缓速制动轴盖、卷带盘装挂齿轮以及供带盘装挂齿轮上的部件变形损伤。

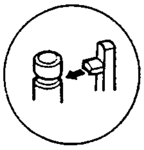


图1－62

2.拆卸磁带装挂齿轮时，请用橡皮带或其它固定导辊，以免再组装时的麻烦。

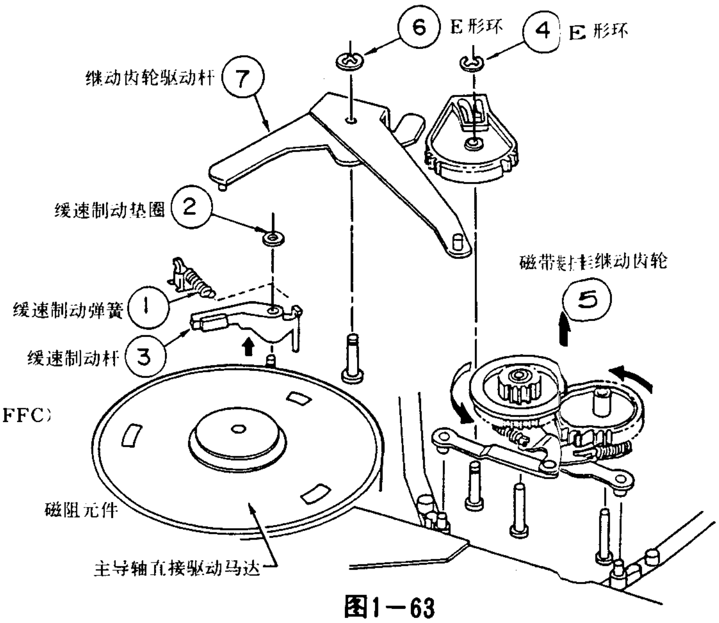

⑥E形环
④E形环
继动齿轮驱动杆⑦
缓速制动垫圈②
缓速制动弹簧①
缓速制动杆③
磁带装挂继动齿轮
⑤
磁阻元件
主导轴直接驱动马达

图1－63

1. 松解缓速制动弹簧①。
2. 卸去缓速制动轴盖②。
3. 拆去缓速制动杆③。
4. 拆去E形环④。
5. 顺装挂旋转方向转动卷带盘磁带装挂齿轮及其装挂臂组件以及供带盘磁带装挂齿轮及其装挂臂组件，将两者⑤拆卸之。
6. 拆去E形环⑥。
7. 拆去继动齿轮驱动杆⑦。

● 齿轮组的组装

按拆卸步骤的相反顺序进行组装。组装中，注意对齐下图所示的齿轮啮合记号。

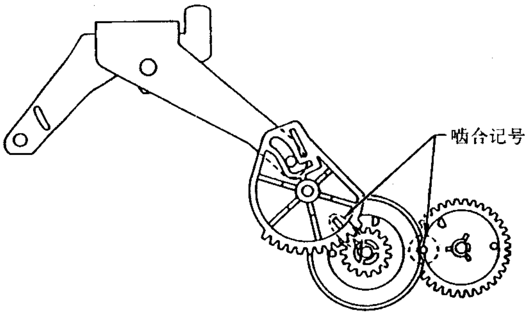


图1－64

注意：

1. 组装后，须向下述部件加注特殊规格的润滑油：各齿轮的全部轮齿，各齿轮轴以及磁带装挂继动齿轮的凸轮槽榫。
2. 切勿造成供带盘及卷带盘的磁带装挂臂的变形和损伤。
3. 切勿弄脏缓速制动杆的毡垫。
4. 切勿让主导轴直接驱动马达的外表面沾染尘埃。(否则，磁阻元件可能会受损害。)
5. 切勿让缓慢制动轴盖以及供带／卷带盘磁带装挂齿轮的防落钩扣的变形超过其规定要求范围。

装带装置的拆卸和组装

● 装带装置的拆卸

1. 松下带盒装填皮带①。
2. 松去三支螺丝②。
3. 向上拉出装带装置。

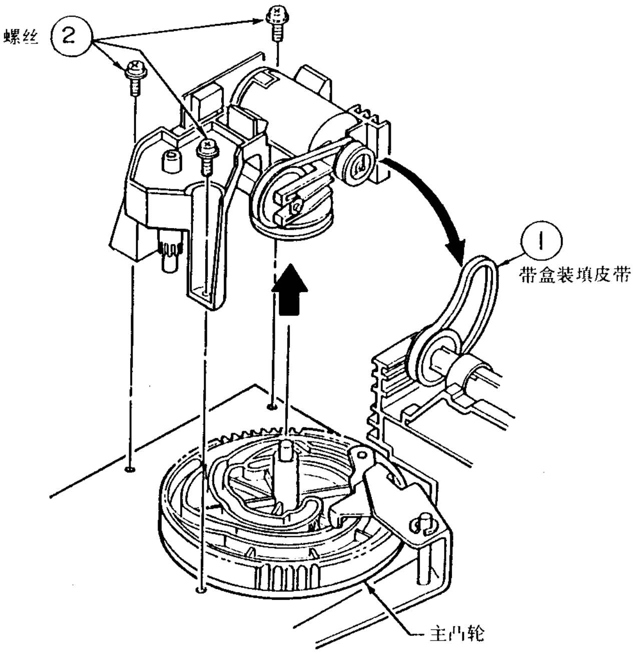


图1－65

注意：

如使用带磁螺丝刀进行拆卸，请注意切勿让带磁螺丝刀触碰A/C磁头。

● 装带装置的组装

1. 逆时针方向满转主凸轮。
2. 对齐凸轮开关的啮合记号。将装带装置与主凸轮相互就位组合，用三支螺丝固定之。

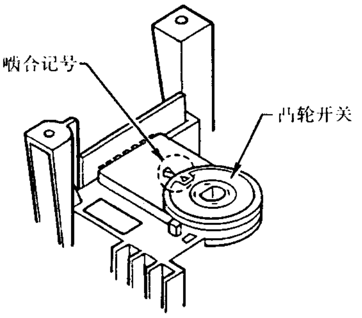


图1－66

3. 最后，连接引线，挂上带盒装填皮带。

注意：

1. 切勿碰伤齿轮。
2. 切勿弄脏皮带。如将皮带弄脏，务必用指定清洁剂清洗之。

装带马达的拆卸和组装

1. 将录象机设置于出盒状态。
2. 从电源插座中拔出电源引线插头。
3. 按上述步骤的说明和要求拆去装带装置。

- **装带马达的拆卸**

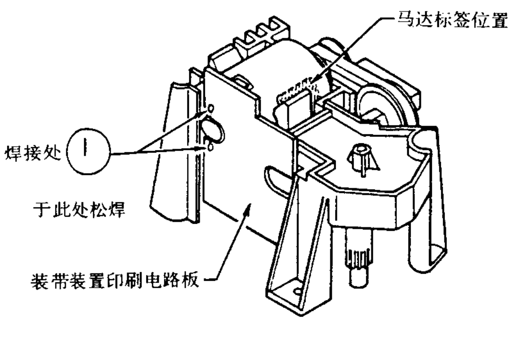

马达标签位置
焊接处 ①
于此处松焊
装带装置印刷电路板

图1－67

1. 松焊连接于装带马达的引线①。
2. 解除凸轮开关卡扣于装带装置上的左右销扣②。拆下凸轮开关及装带装置印刷电路板。(见图 1－68)。

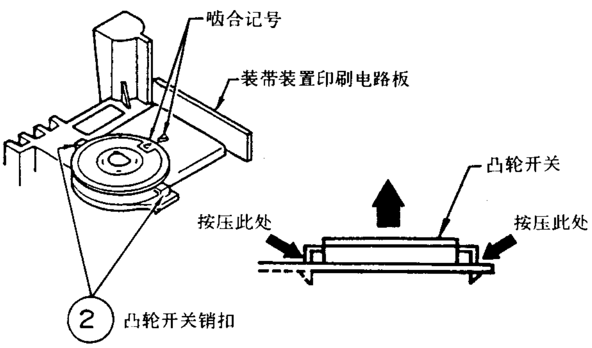

啮合记号
装带装置印刷电路板
凸轮开关
按压此处
按压此处
② 凸轮开关销扣

图1－68

3. 松去装带马达的皮带③。
4. 插螺丝刀或类似之物的端部于图 1－69 所示的间隙中，撬推装带马达的后部，将其取出。

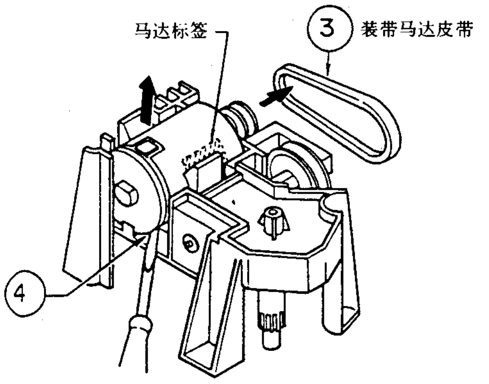

马达标签
③ 装带马达皮带
④

图1－69

- **装带马达的组装**

1. 拆去装带马达后，按图 1－70 所示要求将一新的装带马达安装即位。
2. 按图 1－70 所示要求安置新准备的装带马达，使马达处于其标签即目可视之位置，并使装带马达轴的螺孔与装带装置上的突出部准确相对，带有箭头标记的马达尾端与之相互对齐。

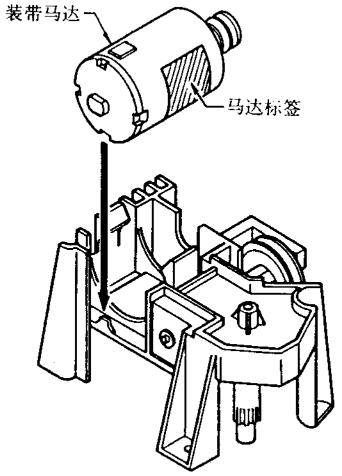
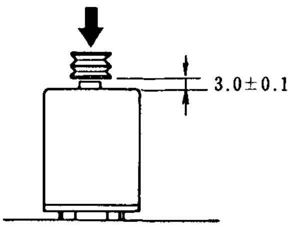


图1－70



注意：
将马达皮带轮压按入位时，其压按力不得大于5kg，马达端头与皮带轮之间的距离不得超过3.0±0.1mm的规定范围。

图1－71

3. 安置装带装置的印刷电路板以及凸轮开关于位。
4. 焊接连接于装带马达的引线。
5. 最后，安置装带装置于位。(见第101页有关项目所述)。
6. 挂上装带皮带。

主凸轮的拆卸和组装

- **主凸轮的拆卸**

1. 拆去E形环①。
2. 拆去紧带轮柄②。
3. 向上拉出主凸轮③。

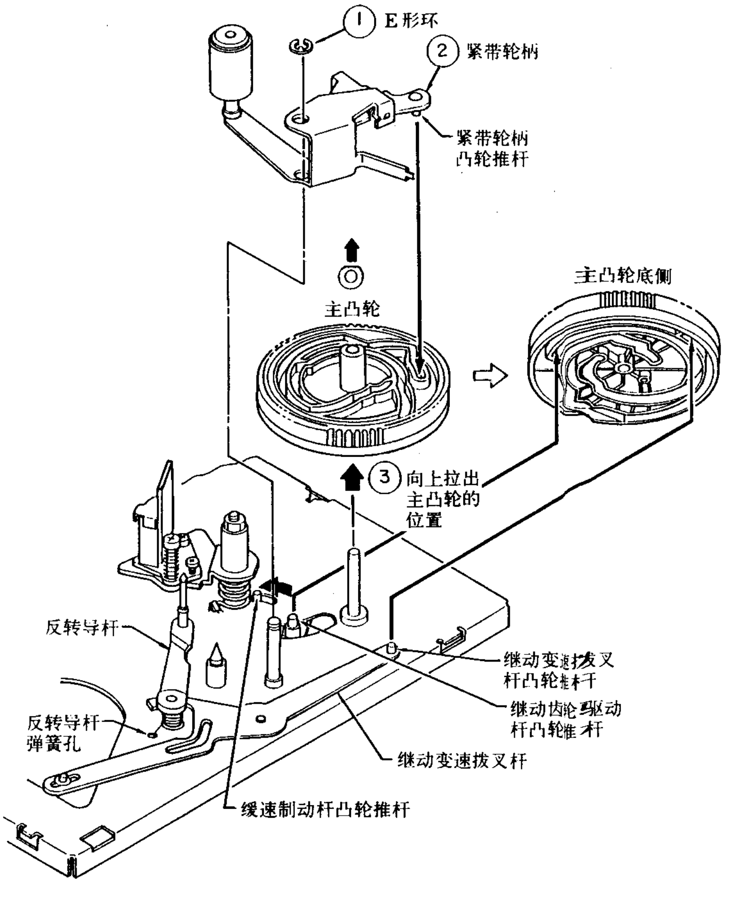

① E形环
② 紧带轮柄
紧带轮柄
凸轮推杆
主凸轮
主凸轮底侧
③ 向上拉出
主凸轮的
位置
反转导杆
反转导杆
弹簧孔
继动变速拨叉
杆凸轮推杆
继动齿轮驱动
杆凸轮推杆
继动变速拨叉杆
缓速制动杆凸轮推杆

图1－72

●主凸轮的主装

1. 置继动齿轮驱动杆于磁带装挂卸除状态之位置。
2. 移动继动变速拨叉杆，使之与主机芯底盘上的反转导杆弹簧孔相触。用手指松卸缓速制动杆，使之与主导轴分离之(按图中箭头所指)。然后，将主凸轮D形切去部分面向图中箭头所指方向安置就位。
3. 沿顺时针方向转动主凸轮少许，让紧带轮柄凸轮推杆进至主凸轮的槽榫之中(按图中箭头所指)，然后安上紧带轮柄，套上E形环。
4. 用手旋转主凸轮，检查四杆（继动齿轮驱动杆，继动变速拨叉杆，半载往复杆以及紧带轮柄）是否均正确地嵌入主凸轮的槽榫。
5. 装上装带装置。（见第101页有关项目所述）

注意：

1. 切勿损伤主凸轮的轮齿以及槽榫。
2. 主凸轮安置完毕，装带装置安置之前，务必先用手转动主凸轮，检查各杆是否正确就位。否则，马达开转时，有造成主凸轮以及各杆损坏之可能。
3. 加注规定之油于主凸轮各槽榫以及轮齿加以润滑。

上部磁鼓的装卸

注意：

下部磁鼓和上部磁鼓的嵌合精度以微米单位为计。因此，拆卸更换时必须充分加以注意，甚至是任何微小的外界尘埃都会影响其嵌合装配精度。

●磁鼓的拆卸(按下记数字之顺拆卸之)

注意：

1. 不得用裸手碰触磁鼓表面。
2. 向上提出磁鼓时，必须保持其绝对垂直；安置磁鼓更换工具时，必须注意不要碰伤其圆盘周边。
3. 紧固磁鼓螺丝时，不得用力碰撞、冲击其螺丝。

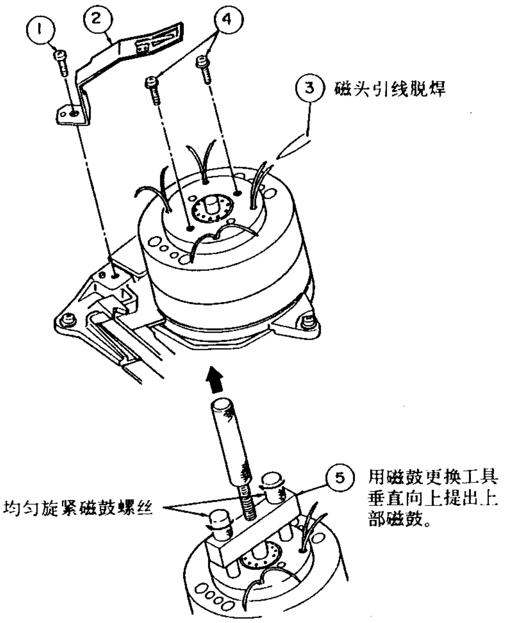


图1－73

●磁鼓的组装

注意：

1. 上部磁鼓组装就位之前，必须检查磁鼓圆盘周边表面边缘有无损伤、有无尘埃。
2. 上部磁鼓组装就位之前，必须检查上部磁鼓的内表面和边缘有无损伤、有无尘埃。
3. 组装就位时，必须保持上部磁鼓的绝对垂直缓慢地套入磁鼓圆盘。
4. 组装就位过程中，绝对禁止尘埃杂物混入上部磁鼓和磁鼓圆盘之间。
5. 扭紧磁鼓螺丝时，不得用力过度。

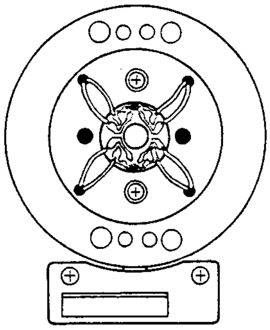


图1－74

1. 将准备好的新磁头组装就位。
2. 用两个螺丝固定上部磁鼓。
3. 焊接各引线。

   注意：

   焊接必须迅速而谨慎，切勿将焊枪接触邻近引线。
4. 更换就位完毕，先进行磁带走行情况检查(见第98页)，然后再进行下列检调。

- ●再现转换点的调试。
- ●X位置的检查和调整。
- ●SP和EP方式慢速跟踪预调的调试。

磁鼓直接驱动马达的装卸

1.设装置于磁带出盒状态。

2.拔出电源插头。

● 马达的拆卸(组装时按其相反顺序进行即可)

1.拆去FFC(全平电缆)①。

2.松去直接驱动马达转子组件的二支固定螺丝②。

3.拉出直接驱动马达转子组件③。

4.松去直接驱动马达定子组件的三支固定螺丝④。

5.拆去直接驱动马达定子组件⑤。

注意：

1.拆去直接驱动马达转子组件时，切勿磕碰装填继动齿轮。

2.固定直接驱动马达转子时，必须将转子安装定位孔与下部安装定位孔对齐。

3.操作中，切勿碰伤上部磁鼓和视频磁头。

4.操作中，切勿让转子或其它部件碰伤霍尔效应器和直接驱动马达定子组件。

5.更换组装完毕，必须进行再现转换点的调试。

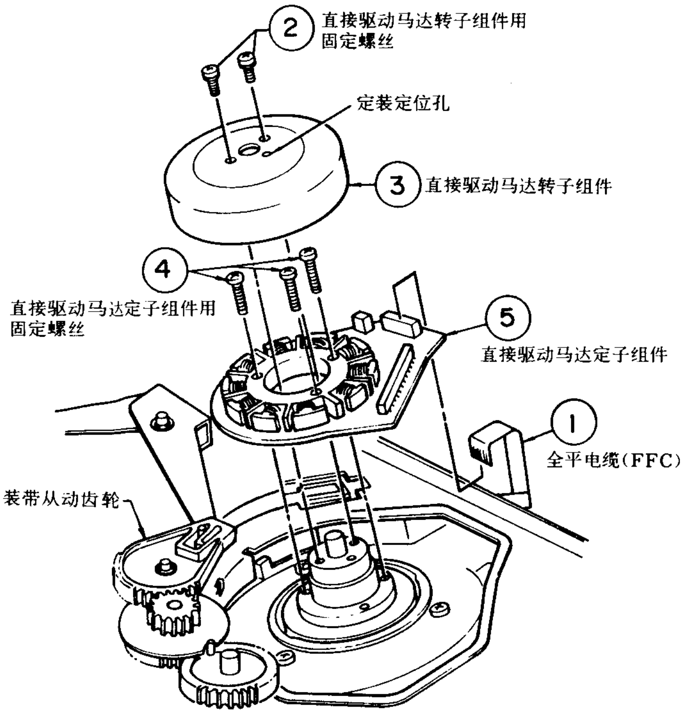

② 直接驱动马达转子组件用固定螺丝
定装定位孔
③ 直接驱动马达转子组件
④ 直接驱动马达定子组件用固定螺丝
⑤ 直接驱动马达定子组件
① 全平电缆(FFC)
装带从动齿轮

图1-75

自动录象头除垢器(AHC)的装卸

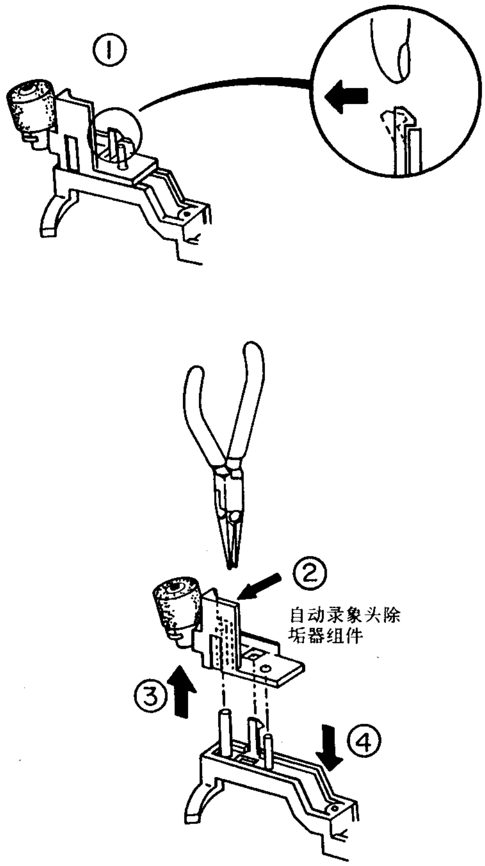

①
②
自动录象头除垢器组件
③
④

图1-76

● 自动录象头除垢器的拆卸

1.按上图箭头所示方向用手指解除部件①钩扣。

用电工钳或类似之物夹住自动录象头除垢器组件②的肋缘(箭头所指处)，再沿箭头③所示方向，向上拔出自动录象头除垢器组件。

注意：

拔出自动录象头除垢器组件时，必须先按下自动录象头除垢器松放柄。

● 自动录象头除垢器的更换

1.按箭头④所示方向按下自动录象头除垢器组件。扣上部件①的钩扣。

注意：

1.切勿让自动录象头除垢器组件触碰磁鼓。

2.切勿让自动录象头除垢器组件的清擦头部分沾有润滑油或其他杂物。

录象机部分电路的调试

注：

● **调试前**

在更换录象机磁头之类的电子元件以及机械部件之后，经常需要进行本节所述的电路调试。在调试之前，检查机械机构以及所有的电子元件是否处于良好的工作状态，否则，调试不能顺利完成。

● **检测用仪器**

- ○音频信号发生器
- ○双轨迹示波器
- ○交流毫伏特计
- ○计频器
- ○空白录象带
- ○调试用螺丝刀
- ○彩条信号发生器
- ○直流伏特计
- ○校正用磁带(VROCPSV)
- ○调试用接续电缆
  (QCNW-3778CEZZ:AB～AB)
  (QCNW-3780CEZZ:AL～AL)

■ 伺服电路的调试

磁头转换点的调试

检测仪器	双轨迹示波器
工作状态	再现
使用磁带	校正用磁带(VROCPSV)
测试点	频道1：视频输出端（EL接线器的销(3)） 频道2：TP2202（触发）（位于Y/C印刷电路板上）
调整点	R7701 磁头开关转换点控制调节
规定要求	6.5±0.5H（行数）

1. 装入校正用磁带(VROCPSV)，再现之。
2. 短接声象(A/V)插孔印刷电路板上的测试点TP8201和TP8202，或者，拆去磁带盒室控制机构组件，设自动跟踪于中央位置。（见下注）
3. 接双轨迹示波器于视频输出端（EL接线器的销(3)）和TP2202。（通过TP2202的磁头开关脉冲起动双轨迹示波器）
4. 调节R7701，使双轨迹示波器荧屏上出现的波形达至图2-1所示的6.5±0.5H（行数）。

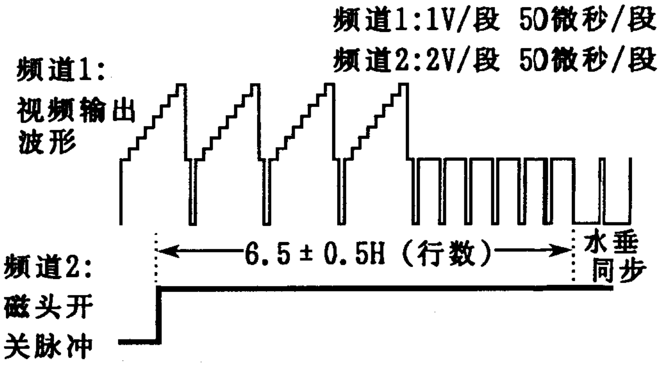


图2-1

注：

作磁头转换点的调试时，切勿使自动跟踪功能动作。

在下记情况下，自动跟踪功能不动作。
（仅限于再现状态）

①拆去磁带盒室控制机构组件并触按跟踪键，设跟踪控制于中央位置时，自动跟踪功能不动作。

②短接声象(A/V)插孔印刷电路板上的测试点TP8201和TP8202时，自动跟踪功能不动作。

■录象机主电路装置的测试点分布

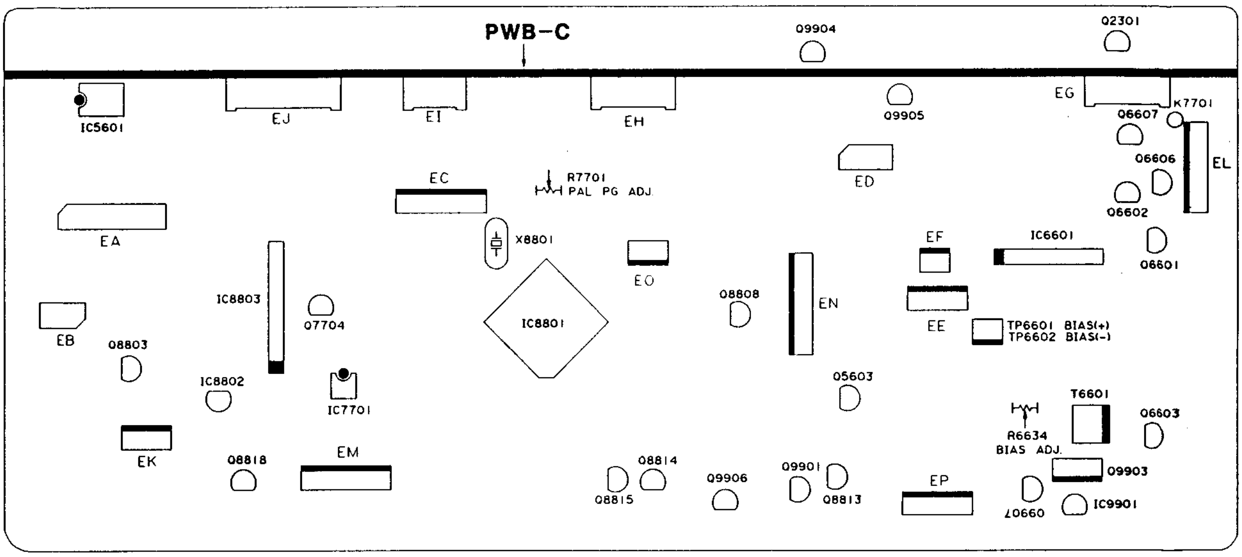

PWB-C
Q9904
Q2301
IC5601
EJ
EI
EH
Q9905
EG
K7701
Q6607
Q6606
EL
ED
Q6602
EC
R7701
PAL PG ADJ
X8801
EA
EF
IC6601
Q6601
EO
IC8803
Q7704
IC8801
Q8808
EN
EE
TP6601 BIAS(+)
TP6602 BIAS(-)
EB
Q8803
IC8802
IC7701
Q5603
T6601
Q6603
R6634
BIAS ADJ.
EK
Q8818
EM
Q8814
Q8815
Q9906
Q9901
Q8813
EP
Q9903
Q9907
IC9901

图2-2

PAL制式SP/LP方式慢动作跟踪预设的调试

检测仪器	电视监测器
工作状态	记录(录象)和再现用PAL制式SP以及LP方式录制的自备录象带
输入信号	PAL制式 电视播放节目或视频信号
测试点	电视监测器荧屏
调整点	跟踪控制键（+）或（—）
规定要求	电视监测器荧屏上无噪声条纹出现

1. 装入用PAL制式SP方式录制的自备录象带，慢动作再现之。
2. 短接插孔印刷电路板上的测试点TP8201和TP8202。
3. 确认再现表示（▶）于电视荧屏上消失。
4. 解除短接状态。
5. 通过触按遥控器上的跟踪键调节跟踪控制，直到电视监测器荧屏上无噪声条纹出现为止。
6. 再装入用PAL制式LP方式录制的自备录象带，慢动作再现之。
7. 短接插孔印刷电路板上的测试点TP8201和TP8202。
8. 确认再现表示（▶）于电视荧屏上消失。
9. 解除短接状态。
10. 通过触按遥控器上的跟踪键调节跟踪控制，直到电视监测器荧屏上无噪声条纹出现为止。

NTSC制式SP/EP方式慢动作跟踪预设的调试

检测仪器	电视监测器
工作状态	
输入信号	NTSC制式电视播放节目或视频信号
测试点	电视监测器荧屏
调整点	跟踪控制键（+）或（—）
规定要求	电视监测器荧屏上无噪声条纹出现

1. 装入用NTSC制式SP方式录制的自备录象带，慢动作再现之。
2. 短接插孔印刷电路板上的测试点TP8201和TP8202。
3. 确认再现表示（▶）于电视荧屏上消失。
4. 解除短接状态。
5. 通过触按遥控器上的跟踪键调节跟踪控制，直到电视监测器荧屏上无噪声条纹出现为止。
6. 再装入用NTSC制式EP方式录制的自备录象带，慢动作再现之。
7. 短接插孔印刷电路板上的测试点TP8201和TP8202。
8. 确认再现表示（▶）于电视荧屏上消失。
9. 解除短接状态。
10. 通过触按遥控器上的跟踪键调节跟踪控制，直到电视监测器荧屏上无噪声条纹出现为止。

PAL制式静止画面垂直同步的调试

检测仪器	电视监测器
工作状态	静止画面再现
输入信号	录有内容的PAL制式自备录象带
测试点	电视监测器荧屏
调整点	跟踪控制键(+)或(—)
规定要求	电视监测器荧屏上无噪声晃抖

1. 再现录有内容的PAL制式自备录象带，静止其中某一画面。
2. 通过触按遥控器上的跟踪键调节跟踪控制，直至电视监测器荧屏上的噪声晃抖达至最小程度。
3. 触按停止(STOP)键，停止录象机再现动作。

NTSC制式静止画面垂直同步的调试

检测仪器	电视监测器
工作状态	静止画面再现
输入信号	NTSC制式电视播放节目或视频信号
测试点	电视监测器荧屏
调整点	跟踪控制键(+)或(—)
规定要求	电视监测器荧屏上无噪声晃抖

1. 再现录有内容的PAL制式自备录象带，静止其中某一画面。
2. 通过触按遥控器上的跟踪键调节跟踪控制，直至电视监测器荧屏上的噪声晃抖达至最小程度。
3. 触按停止(STOP)键，停止录象机再现动作。

■ 亮度/色度（Y/C）信号电路的调试

视频E-E电平的调试

检测仪器	示波器
工作状态	E-E或记录（录象）
输入信号	PAL制式彩条信号(1.0Vp-p)
测试点	视频输出端 (EL接线器的销(3))
调整点	R2202 E-E电平控制
规定要求	2.0 ± 0.2Vp-p

1. 接示波器于视频输出端（EL接线器的销(3)）。
2. 向视频输入端输入彩条信号，设录象机于声象1输入状态。
3. 调节R2202，使输出波形幅值达至如图2-3所示的2.0Vp-p的规定要求。(见下注)

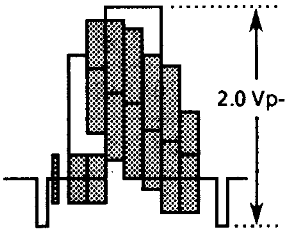


图2-3

注：

调试完毕后，必须检查FM亮度信号的偏差。（频率及偏差的调试）

VCO（压控振荡）的调试

检测仪器	直流伏特计
工作状态	E-E或记录（录象）
输入信号	PAL制式彩条信号(1.0Vp-p)
测试点	TP5501(信号),TP5502(接地)
调整点	FL5501VCO
规定要求	2.25 ± 0.1V

1. 向视频输入端输入彩条信号，设录象机于声象输入状态。
2. 接直流伏特计于测试点TP5501(信号)和TP5502(接地)。
3. 调节FL5501，使直流伏特计的读数达至2.25 ± 0.1V的规定要求。

■亮度／色度信号电路的测试点分布

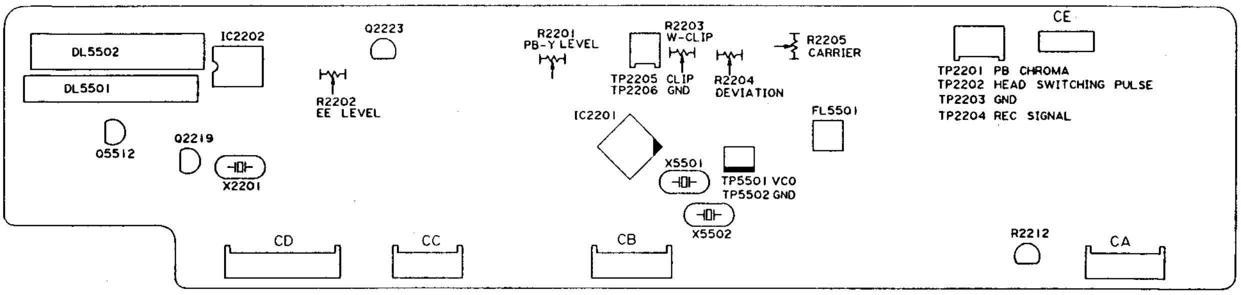

DL5502
DL5501
IC2202
Q2223
Q5512
Q2219
X2201
R2202
EE LEVEL
R2201
PB-Y LEVEL
R2203
W-CLIP
TP2205 CLIP
TP2206 GND
R2204
DEVIATION
R2205
CARRIER
IC2201
X5501
X5502
TP5501 VCO
TP5502 GND
FL5501
CE
TP2201 PB CHROMA
TP2202 HEAD SWITCHING PULSE
TP2203 GND
TP2204 REC SIGNAL
CD
CC
CB
CA
R2212

图2-4

白色限幅的调试

检测仪器	示波器
工作状态	E-E或记录(录象)
输入信号	PAL制式彩条信号(1.0Vp-p)
测试点	TP2205(信号),TP2206(接地)
调整点	R2203白色限幅调节
规定要求	190±5%(见右注)

1. 接示波器于测试点TP2205(信号)和TP2206(接地)。
2. 向视频输入端输入彩条信号，设录象机于声象输入状态。
3. 调节R2203，使视频信号的过调量限制于图2-5所示的190%范围内。

注：
从同步峰值至白色峰值，其电平为100%。于白色电平之上，白色限幅电平为90%。
（无黑色限幅调整）

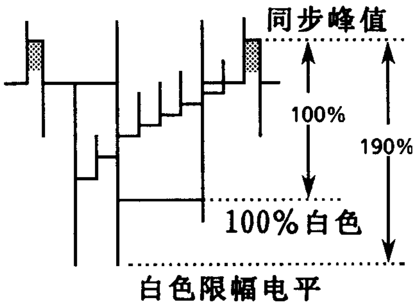

同步峰值
100%
190%
100%白色
白色限幅电平

图2-5

FM载波频率和偏差的调试

检测仪器	计频器 示波器
工作状态	记录(录象)/再现
输入信号	PAL制式彩条信号(1.0Vp-p)
测试点	TP2204 视频输出端 (EL接线器的销(3))
调整点	R2205FM载波调节 R2204偏差调节
规定要求	3.8±0.05MHz 2.0±0.1Vp-p

1. 确认R2202（E-E电平调节）的调整已正确完了。
2. 接示波器于视频输出端（EL接线器的销(3)）。
3. 接计频器于测试点TP2204。
4. 设录象机于声象输入状态。切勿向视频输入端输入视频信号。(拆去视频输入端的所有接线。)
5. 于此状态下，调节R2205,使计频器所测读数达至3.8MHz的规定要求。
6. 向视频输入端输入EIA标准彩条信号。调节R2204，使计频器所测读数达至4.3MHz的规定要求。
7. 重复步骤5～7。
8. 于此状态下，记录PAL标准彩条信号。之后,倒带再现之。
9. 检查再现彩条信号幅值是否为图2-6所示2.0±0.1Vp-p的规定要求。
   如不符规定要求，检查再现电平(R2201),重新调整之。

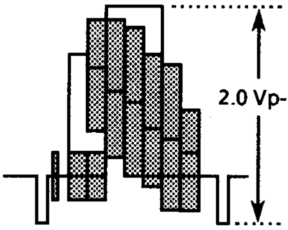


图2-6

再现电平的调试

检测仪器	示波器
工作状态	再现
使用磁带	校正用磁带(VROCPSV)
测试点	视频输出端 (EL接线器的销(3))
调整点	R2201再现电平
规定要求	2.0±0.2Vp-p

1. 接示波器于视频输出端（EL接线器的销(3)）。
2. 再现校正用磁带中录有彩条信号之部分。调节R2201，使彩条信号的幅值达至图2-7所示2.0Vp-p的规定要求。

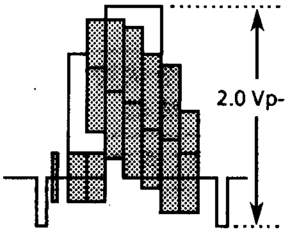


图2-7

■ 音频电路的调试

再现电平的调试

检测仪器	交流毫伏特计
工作状态	再现
输入信号	校正用磁带(VROCPSV) (1kHz电平控制信号)
测试点	音频输出端 (EL接线器的销(7))
规定要求	-9±2dBs(0.6～1.0Vp-p)

1. 装入校正用磁带(VROCPSV,1kHz电平控制信号),再现之。
2. 接交流毫伏特计于音频输出端(EL接线器的销(3))
3. 检查输出电平达至-9±2dBs的规定要求。

记录电平的调试

检测仪器	交流毫伏特计 或示波器
工作状态	记录(录音)/再现
输入信号	1kHz, -8dBs(0.87Vp-p)
测试点	音频输出端 (EL接线器的销(7))
规定要求	-8±2dBs(0.7～1.1Vp-p)

1. 接交流毫伏特计于音频输出端(EL接线器的销(7))。
2. 向音频输入端输入1kHz、-8dBs的音频信号。
3. 自录后再现之。
4. 检查音频输出端的电平是否符合规定要求。
   如不符合规定要求，则需重新对偏压电流进行调整。（下记检测项目）

偏压电流的调试

检测仪器	交流毫伏特计或 示波器
工作状态	记录（录音）
输入信号	不需要
测试点	TP6601(+)～TP6602(-)
调整点	R6634
规定要求	2.6±0.1mVrms (7.6±0.3mVp-p)

1. 接交流毫伏特计于测试点TP6601(+)和TP6602(-)。(接TP6602于接地线)
2. 设录象机于记录状态。
3. 调节R6634, 使输出波形幅值达至2.6mVrms的规定要求。

消磁电压和振荡器频率的调试

检测仪器	示波器
工作状态	记录（录音）
测试点	完全消磁磁头两端
调整点	T6601
规定要求	70±5kHz,大于40Vp-p

1. 设录象机于记录状态
2. 接示波器于完全消磁磁头两端。
3. 检查完全消磁磁头两端的电压是否为大于40Vp-p, 并振荡频率是否为70±5kHz。

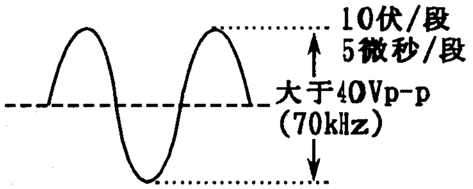


图2-8

录象机部分的动作流程图和故障检修

机械动作流程

★本流程只是录象机部分机械动作之概要，并非为动作原理的详细说明。

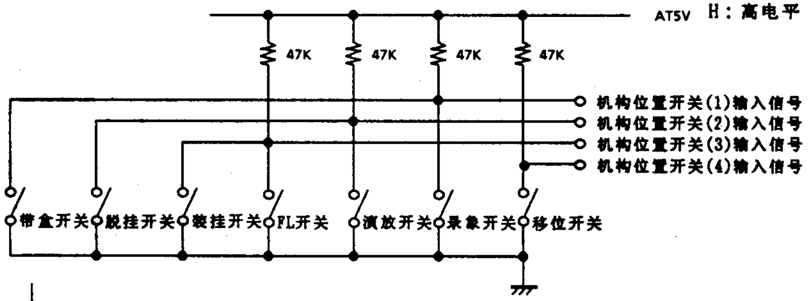
★凸轮开关数位读取功能

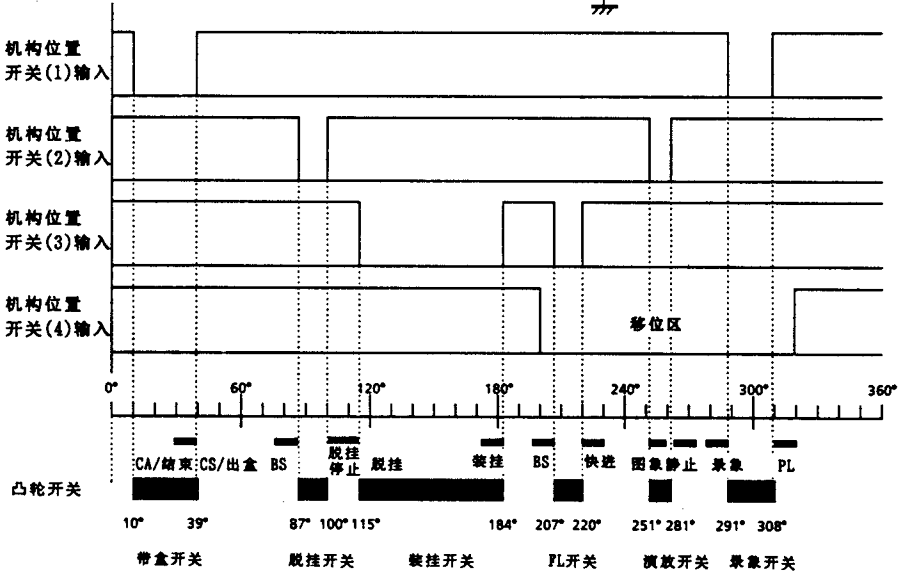
凸轮开关的ON或OFF与机构位置开关（1～4）输入信号的对应关系如下。

	带盒开关 "ON"	脱挂开关 "ON"	装挂开关 "ON"	FL开关 "OFF"	演放开关 "ON"	录象开关 "ON"	全体开关 "OFF"
机构位置开关(1)输入信号	L	H	H	H	H	L	H
机构位置开关(2)输入信号	H	L	H	H	L	H	H
机构位置开关(3)输入信号	H	H	L	L	H	H	H
机构位置开关(4)输入信号	H	H	H	L	L	L	H

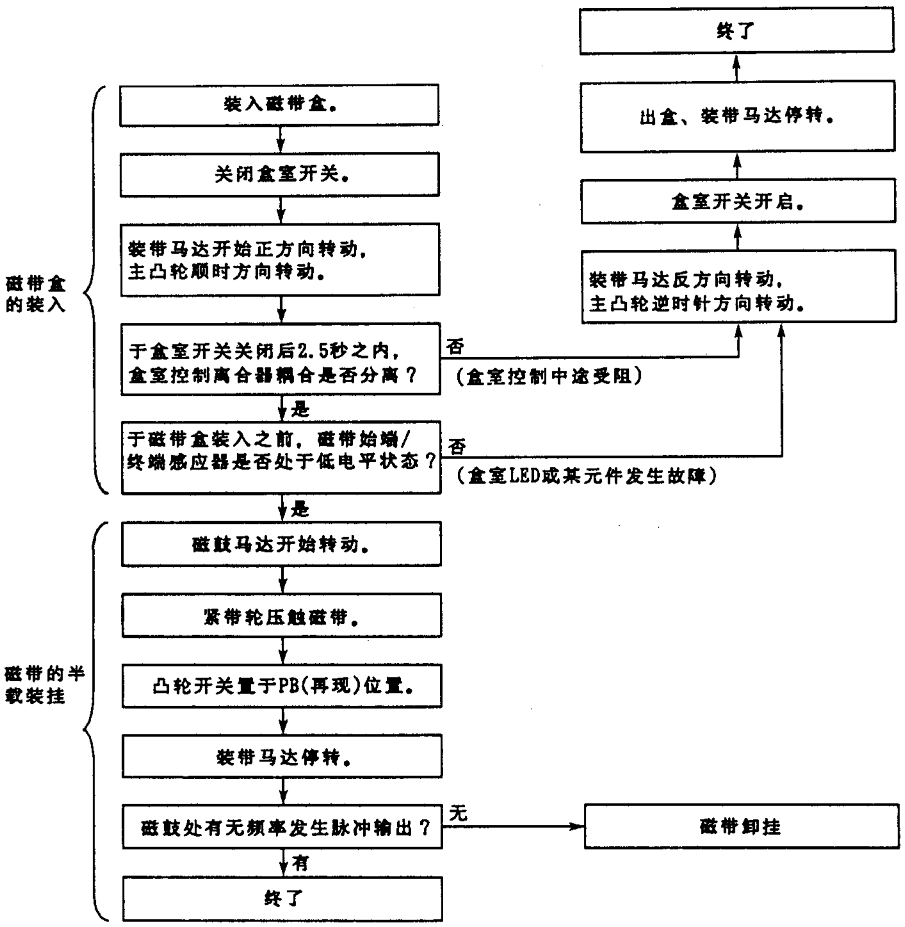
L：低电平

H：高电平

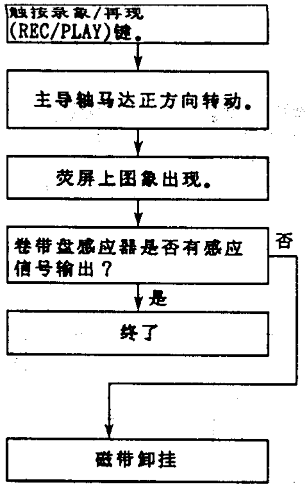

AT5V
47K
47K
47K
47K
机构位置开关(1)输入信号
机构位置开关(2)输入信号
机构位置开关(3)输入信号
机构位置开关(4)输入信号
带盒开关
脱挂开关
装挂开关
FL开关
演放开关
录象开关
移位开关


机构位置开关(1)输入
机构位置开关(2)输入
机构位置开关(3)输入
机构位置开关(4)输入
移位区
0°
60°
120°
180°
240°
300°
360°
CA/结束
CS/出盒
BS
脱挂停止
脱挂
装挂
BS
快进
图象静止
录象
PL
凸轮开关
10°
39°
87°
100°
115°
184°
207°
220°
251°
281°
291°
308°
带盒开关
脱挂开关
装挂开关
FL开关
演放开关
录象开关

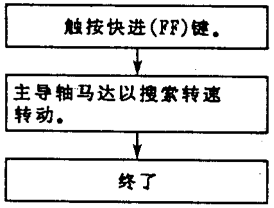
装入录象磁带盒一动作停止


磁带盒的装入
装入磁带盒。
关闭盒室开关。
装带马达开始正方向转动，主凸轮顺时方向转动。
于盒室开关关闭后2.5秒之内，盒室控制离合器耦合是否分离？
否
（盒室控制中途受阻）
是
于磁带盒装入之前，磁带始端/终端感应器是否处于低电平状态？
否
（盒室LED或某元件发生故障）
是
装带马达反方向转动，主凸轮逆时针方向转动。
盒室开关开启。
出盒、装带马达停转。
终了
磁带的半载装挂
磁鼓马达开始转动。
紧带轮压触磁带。
凸轮开关置于PB(再现)位置。
装带马达停转。
磁鼓处有无频率发生脉冲输出？
无
磁带卸挂
有
终了

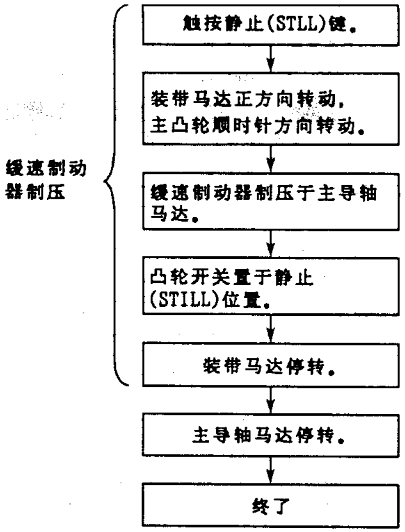
停止状态→录象（记录）/再现


触按录象/再现(REC/PLAY)键。
主导轴马达正方向转动。
荧屏上图象出现。
卷带盘感应器是否有感应信号输出？
否
是
终了
磁带卸挂

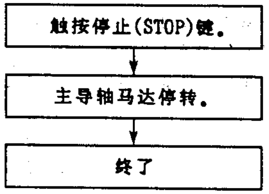
再现→视频搜索快进


触按快进(FF)键。
主导轴马达以搜索转速转动。
终了

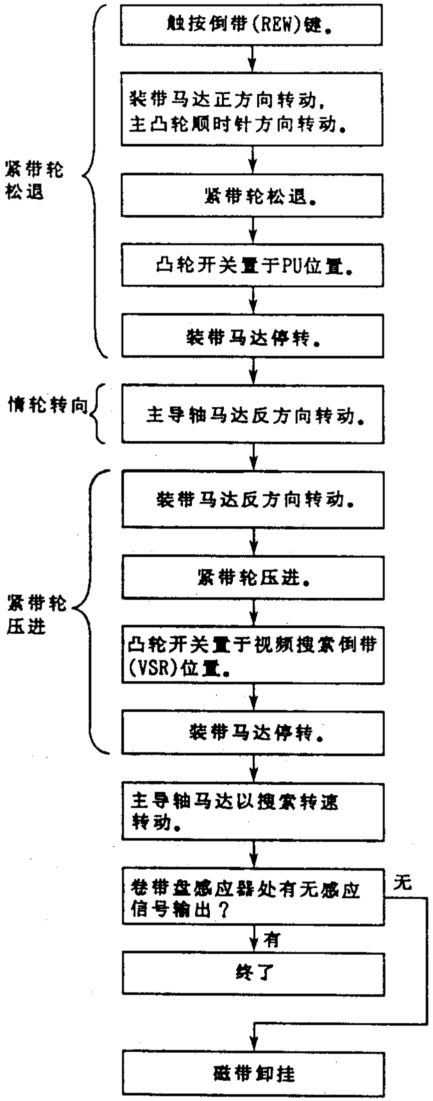
再现状态→静止


缓速制动器制压
触按静止(STLL)键。
装带马达正方向转动，主凸轮顺时针方向转动。
缓速制动器制压于主导轴马达。
凸轮开关置于静止(STILL)位置。
装带马达停转。
主导轴马达停转。
终了

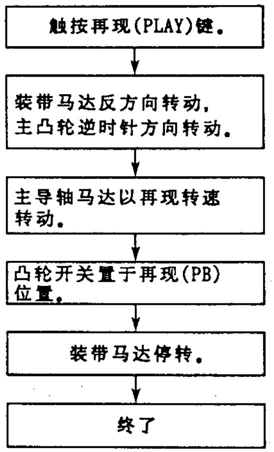
录象（记录）/再现→停止状态


触按停止(STOP)键。
主导轴马达停转。
终了

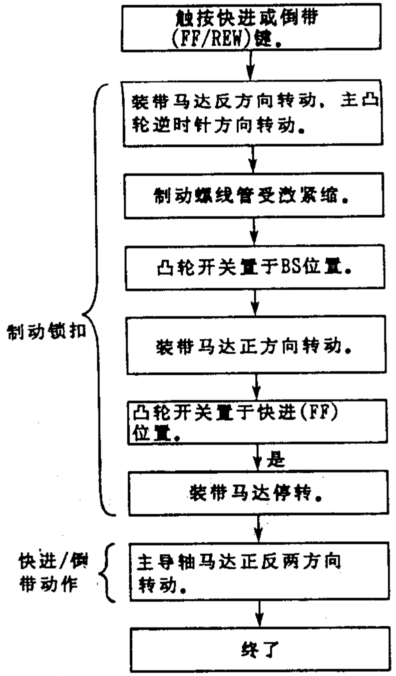
再现→视频搜索倒带


紧带轮松退
惰轮转向
紧带轮压进
触按倒带(REW)键。
装带马达正方向转动，主凸轮顺时针方向转动。
紧带轮松退。
凸轮开关置于PU位置。
装带马达停转。
主导轴马达反方向转动。
装带马达反方向转动。
紧带轮压进。
凸轮开关置于视频搜索倒带(VSR)位置。
装带马达停转。
主导轴马达以搜索转速转动。
卷带盘感应器处有无感应信号输出？
无
有
终了
磁带卸挂

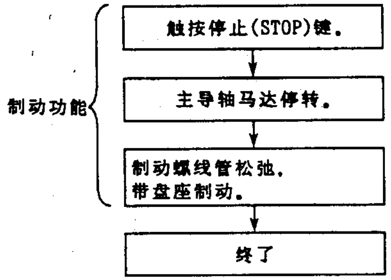
视频搜索倒带→再现


触按再现(PLAY)键。
装带马达反方向转动，主凸轮逆时针方向转动。
主导轴马达以再现转速转动。
凸轮开关置于再现(PB)位置。
装带马达停转。
终了

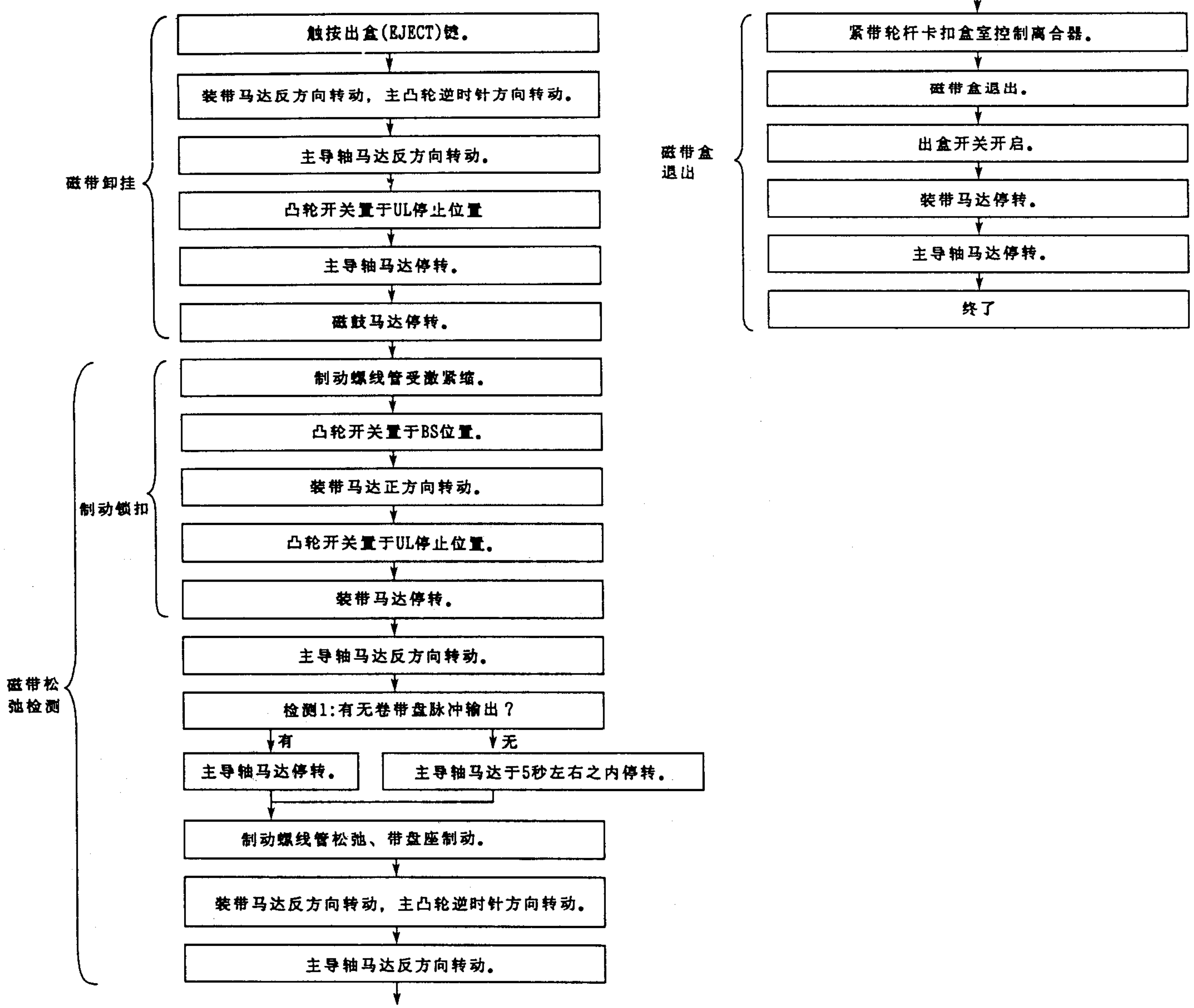
停止状态→快进/倒带


触按快进或倒带(FF/REW)键。
制动锁扣
装带马达反方向转动，主凸轮逆时针方向转动。
制动螺线管受激紧缩。
凸轮开关置于BS位置。
装带马达正方向转动。
凸轮开关置于快进(FF)位置。
是
装带马达停转。
快进/倒带动作
主导轴马达正反两方向转动。
终了

快进/倒带→停止状态

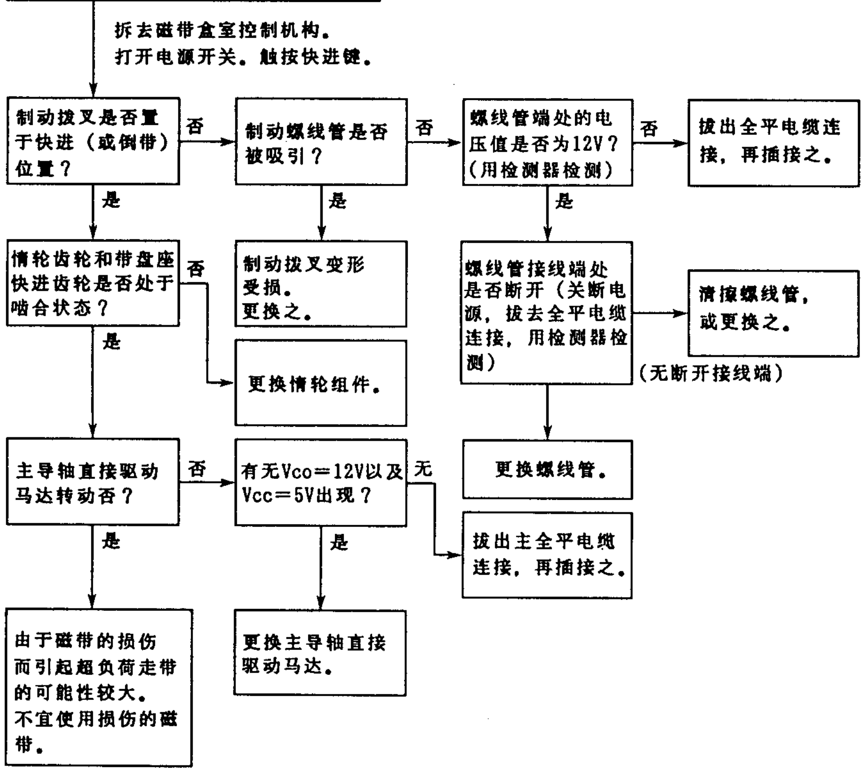

制动功能
触按停止(STOP)键。
主导轴马达停转。
制动螺线管松弛、带盘座制动。
终了

停止状态→出盒

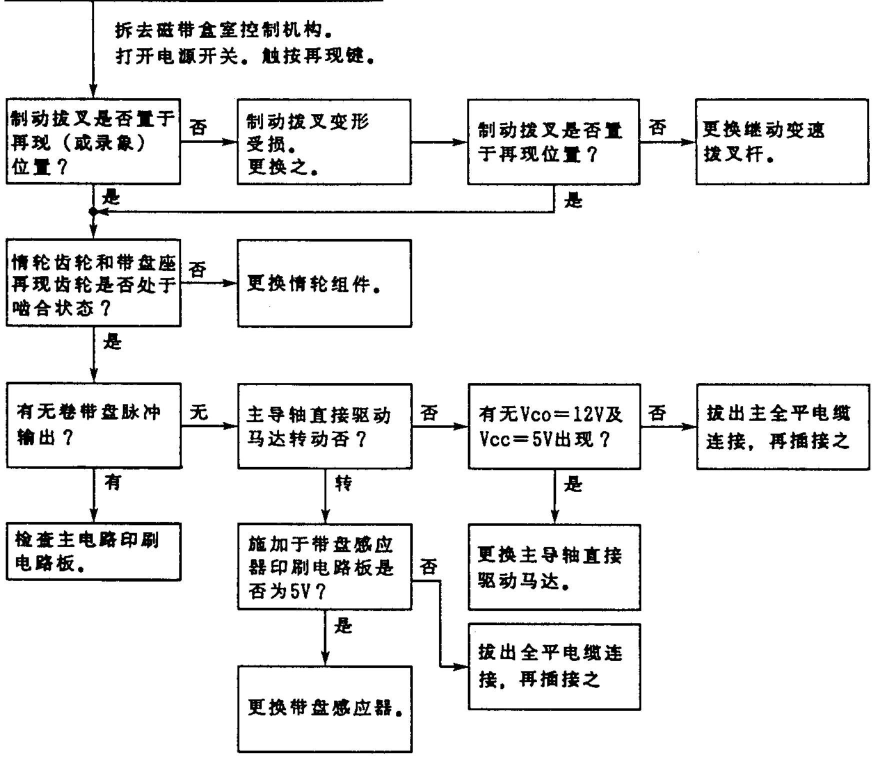

磁带卸挂
触按出盒(EJECT)键。
装带马达反方向转动，主凸轮逆时针方向转动。
主导轴马达反方向转动。
凸轮开关置于UL停止位置
主导轴马达停转。
磁鼓马达停转。
磁带松弛检测
制动锁扣
制动螺线管受激紧缩。
凸轮开关置于BS位置。
装带马达正方向转动。
凸轮开关置于UL停止位置。
装带马达停转。
主导轴马达反方向转动。
检测1:有无卷带盘脉冲输出？
有
无
主导轴马达停转。
主导轴马达于5秒左右之内停转。
制动螺线管松弛、带盘座制动。
装带马达反方向转动，主凸轮逆时针方向转动。
主导轴马达反方向转动。
磁带盒退出
紧带轮杆卡扣盒室控制离合器。
磁带盒退出。
出盒开关开启。
装带马达停转。
主导轴马达停转。
终了

机械故障检修

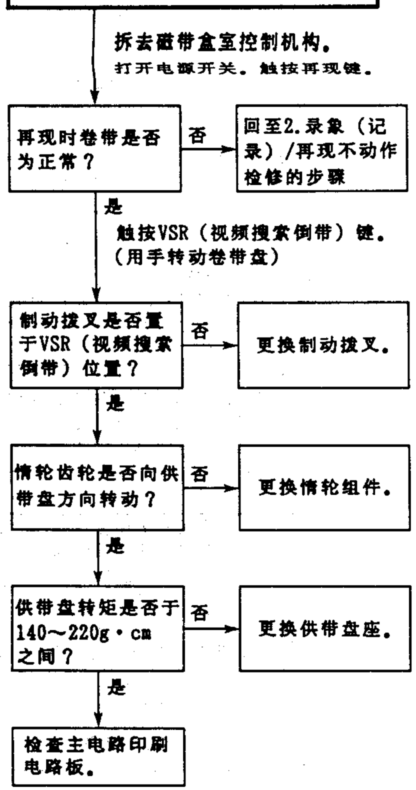
1.快进/倒带不动作（不卷带）


拆去磁带盒室控制机构。
打开电源开关。触按快进键。
制动拨叉是否置于快进（或倒带）位置？
否
制动螺线管是否被吸引？
否
螺线管端处的电压值是否为12V？（用检测器检测）
否
拔出全平电缆连接，再插接之。
是
是
是
惰轮齿轮和带盘座快进齿轮是否处于啮合状态？
否
制动拨叉变形受损。更换之。
螺线管接线端处是否断开（关断电源，拔去全平电缆连接，用检测器检测）
清擦螺线管，或更换之。
（无断开接线端）
是
更换惰轮组件。
更换螺线管。
主导轴直接驱动马达转动否？
否
有无Vco=12V以及Vcc=5V出现？
无
拔出主全平电缆连接，再插接之。
是
是
由于磁带的损伤而引起超负荷走带的可能性较大。不宜使用损伤的磁带。
更换主导轴直接驱动马达。

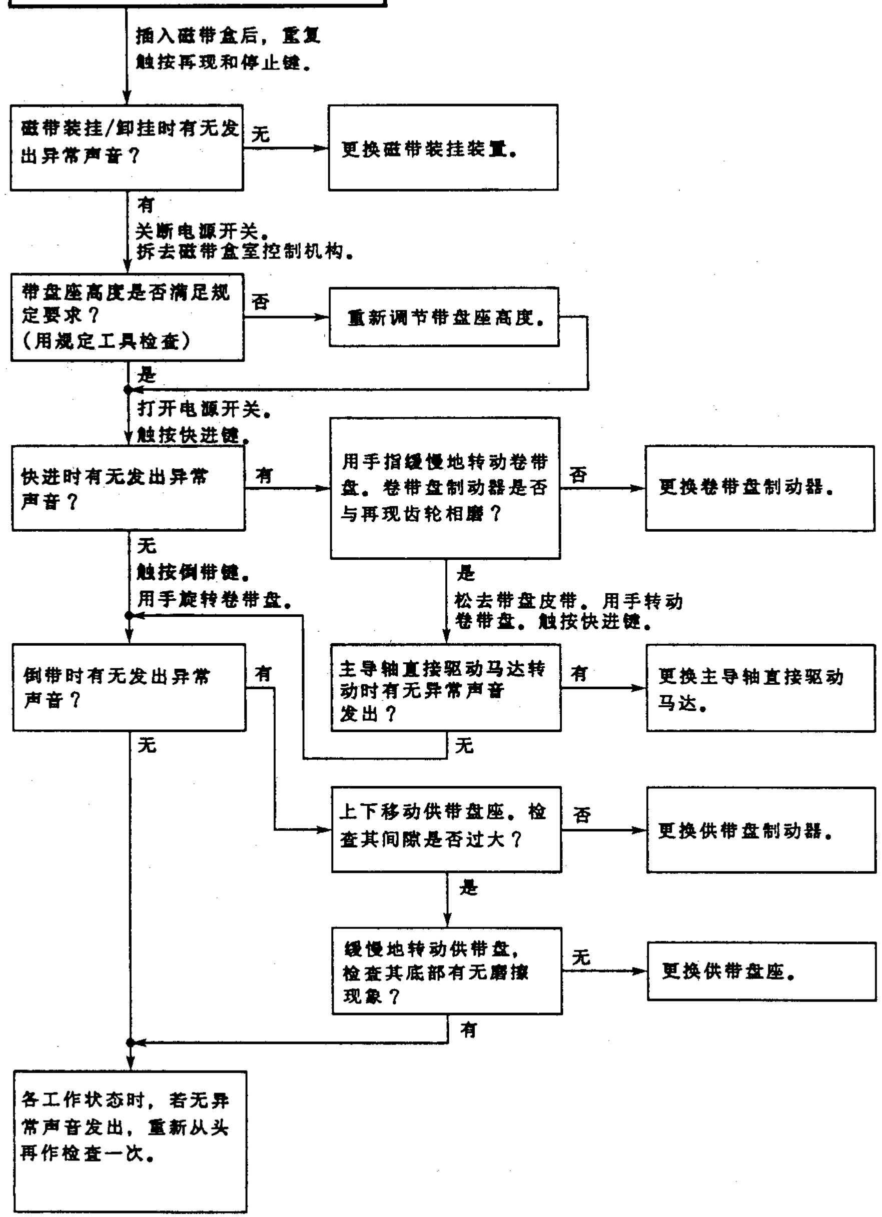
2.录象（记录）/再现不动作
（状态解除）


拆去磁带盒室控制机构。
打开电源开关。触按再现键。
制动拨叉是否置于再现（或录象）位置？
否
制动拨叉变形受损。更换之。
制动拨叉是否置于再现位置？
否
更换继动变速拨叉杆。
是
是
惰轮齿轮和带盘座再现齿轮是否处于啮合状态？
否
更换惰轮组件。
是
有无卷带盘脉冲输出？
无
主导轴直接驱动马达转动否？
否
有无Vco=12V及Vcc=5V出现？
否
拔出主全平电缆连接，再插接之
有
转
是
检查主电路印刷电路板。
施加于带盘感应器印刷电路板是否为5V？
否
更换主导轴直接驱动马达。
是
拔出全平电缆连接，再插接之
更换带盘感应器。

3.视频搜索倒带不动作（不卷带）


拆去磁带盒室控制机构。
打开电源开关。触按再现键。
再现时卷带是否为正常？
否
回至2.录象（记录）/再现不动作检修的步骤
是
触按VSR（视频搜索倒带）键。
（用手转动卷带盘）
制动拨叉是否置于VSR（视频搜索倒带）位置？
否
更换制动拨叉。
是
惰轮齿轮是否向供带盘方向转动？
否
更换惰轮组件。
是
供带盘转矩是否于140～220g・cm之间？
否
更换供带盘座。
是
检查主电路印刷电路板。

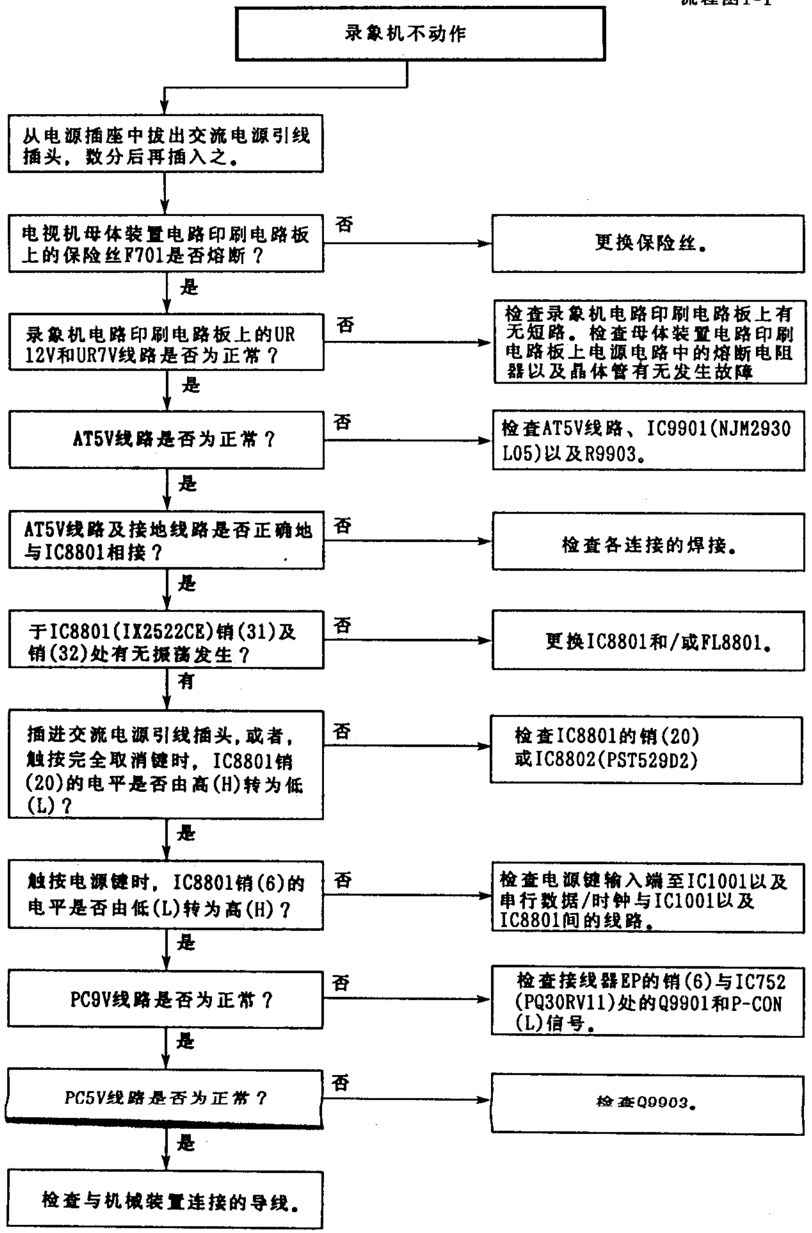
4.于各工作状态均发出异常声音


插入磁带盒后，重复触按再现和停止键。
磁带装挂/卸挂时有无发出异常声音？
无
更换磁带装挂装置。
有
关断电源开关。
拆去磁带盒室控制机构。
带盘座高度是否满足规定要求？（用规定工具检查）
否
重新调节带盘座高度。
是
打开电源开关。
触按快进键。
快进时有无发出异常声音？
有
用手指缓慢地转动卷带盘。卷带盘制动器是否与再现齿轮相磨？
否
更换卷带盘制动器。
是
松去带盘皮带。用手转动卷带盘。触按快进键。
主导轴直接驱动马达转动时有无异常声音发出？
有
更换主导轴直接驱动马达。
无
无
触按倒带键。
用手旋转卷带盘。
倒带时有无发出异常声音？
有
上下移动供带盘座。检查其间隙是否过大？
否
更换供带盘制动器。
是
缓慢地转动供带盘，检查其底部有无磨擦现象？
无
更换供带盘座。
有
无
各工作状态时，若无异常声音发出，重新从头再作检查一次。

电源电路的故障检修

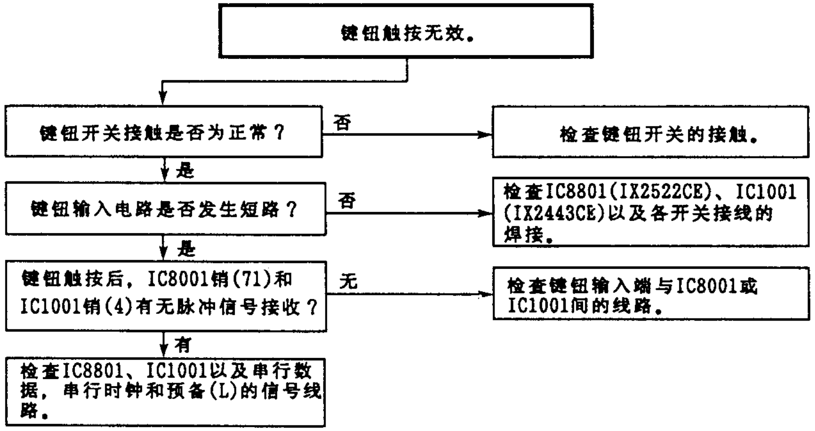
录象机电源装置的故障检修

流程图1-1


录象机不动作
从电源插座中拔出交流电源引线插头，数分后再插入之。
电视机母体装置电路印刷电路板上的保险丝F701是否熔断？
否
更换保险丝。
是
录象机电路印刷电路板上的UR12V和UR7V线路是否为正常？
否
检查录象机电路印刷电路板上有无短路。检查母体装置电路印刷电路板上电源电路中的熔断电阻器以及晶体管有无发生故障
是
AT5V线路是否为正常？
否
检查AT5V线路、IC9901(NJM2930L05)以及R9903。
是
AT5V线路及接地线路是否正确地与IC8801相接？
否
检查各连接的焊接。
是
于IC8801(IX2522CE)销(31)及销(32)处有无振荡发生？
否
更换IC8801和/或FL8801。
有
插进交流电源引线插头，或者，触按完全取消键时，IC8801销(20)的电平是否由高(H)转为低(L)？
否
检查IC8801的销(20)或IC8802(PST529D2)
是
触按电源键时，IC8801销(6)的电平是否由低(L)转为高(H)？
否
检查电源键输入端至IC1001以及串行数据/时钟与IC1001以及IC8801间的线路。
是
PC9V线路是否为正常？
否
检查接线器EP的销(6)与IC752(PQ30RV11)处的Q9901和P-CON(L)信号。
是
PC5V线路是否为正常？
否
检查Q9903。
是
检查与机械装置连接的导线。

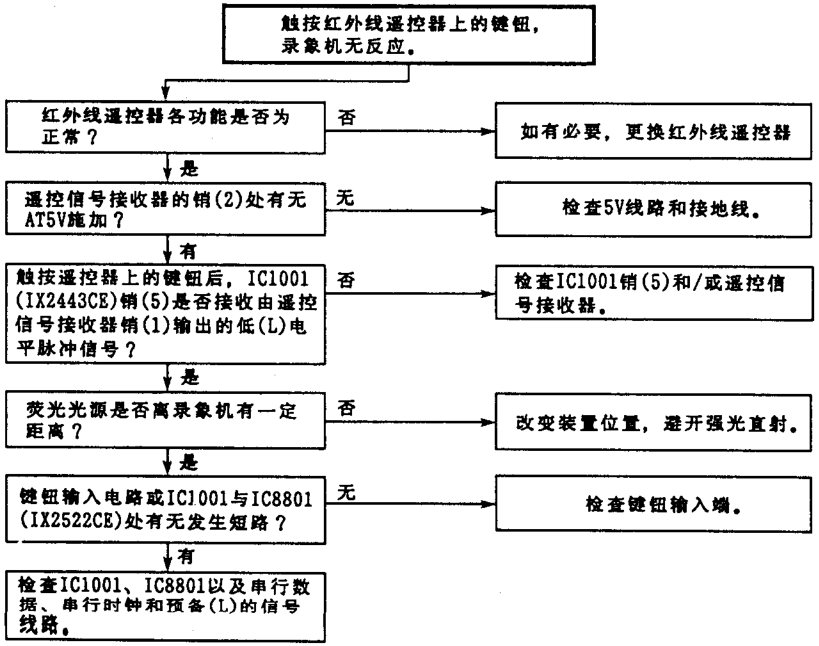
键钮输入电路的故障检修

流程图1-2


键钮触按无效。
键钮开关接触是否为正常？
否
检查键钮开关的接触。
是
键钮输入电路是否发生短路？
否
检查IC8801(IX2522CE)、IC1001(IX2443CE)以及各开关接线的焊接。
是
键钮触按后，IC8001销(71)和IC1001销(4)有无脉冲信号接收？
无
检查键钮输入端与IC8001或IC1001间的线路。
有
检查IC8801、IC1001以及串行数据，串行时钟和预备(L)的信号线路。

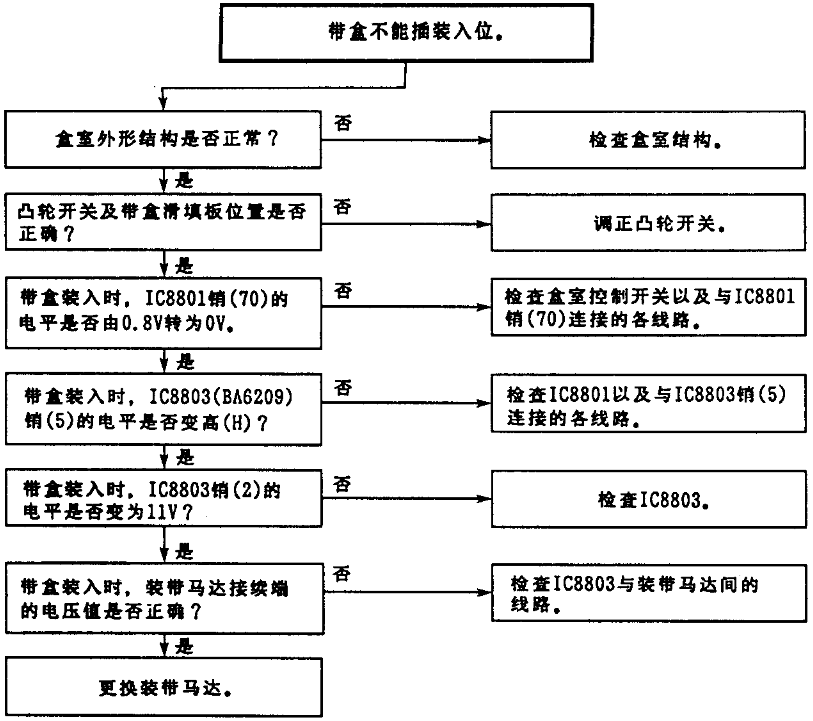
红外线遥控器的故障检修

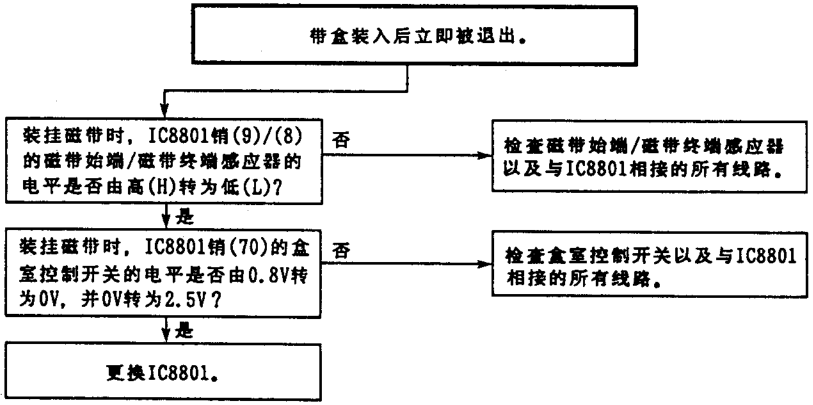
流程图1-3


触按红外线遥控器上的键钮，录象机无反应。
红外线遥控器各功能是否为正常？
否
如有必要，更换红外线遥控器
是
遥控信号接收器的销(2)处有无AT5V施加？
无
检查5V线路和接地线。
有
触按遥控器上的键钮后，IC1001(IX2443CE)销(5)是否接收由遥控信号接收器销(1)输出的低(L)电平脉冲信号？
否
检查IC1001销(5)和/或遥控信号接收器。
是
荧光光源是否离录象机有一定距离？
否
改变装置位置，避开强光直射。
是
键钮输入电路或IC1001与IC8801(IX2522CE)处有无发生短路？
无
检查键钮输入端。
有
检查IC1001、IC8801以及串行数据、串行时钟和预备(L)的信号线路。

磁带盒室控制机构的故障检修

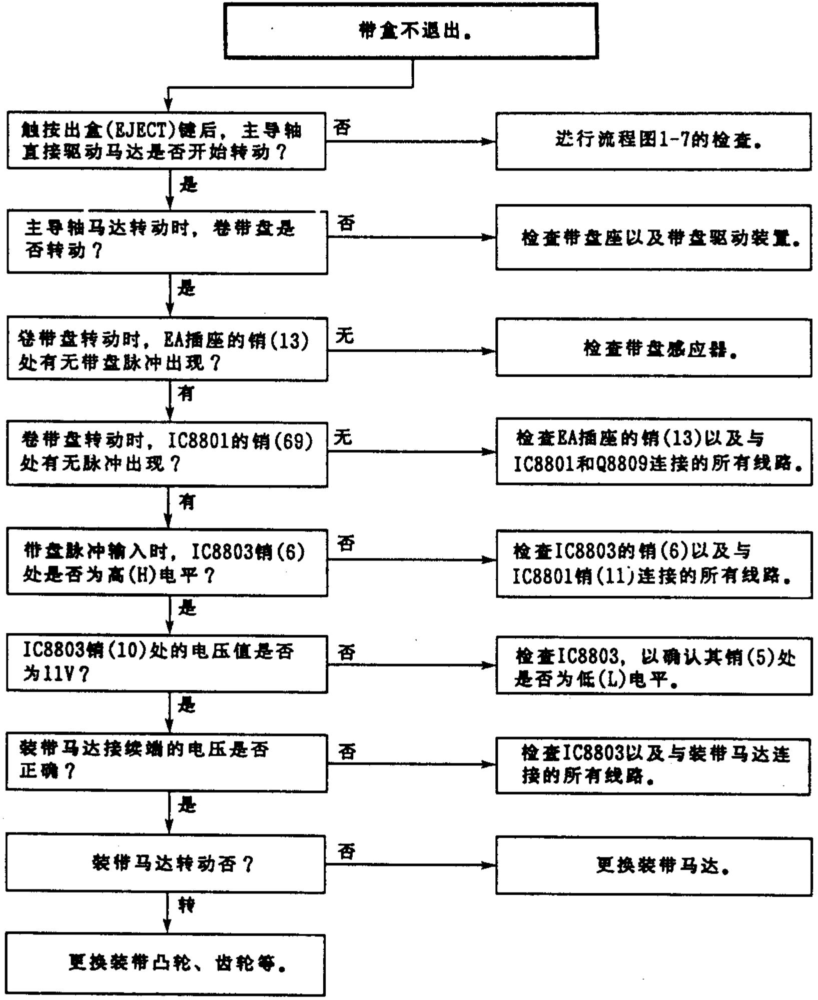
流程图1-4


带盒不能插装入位。
盒室外形结构是否正常？
否
检查盒室结构。
是
凸轮开关及带盒滑填板位置是否正确？
否
调正凸轮开关。
是
带盒装入时，IC8801销(70)的电平是否由0.8V转为0V。
否
检查盒室控制开关以及与IC8801销(70)连接的各线路。
是
带盒装入时，IC8803(BA6209)销(5)的电平是否变高(H)？
否
检查IC8801以及与IC8803销(5)连接的各线路。
是
带盒装入时，IC8803销(2)的电平是否变为11V？
否
检查IC8803。
是
带盒装入时，装带马达接续端的电压值是否正确？
否
检查IC8803与装带马达间的线路。
是
更换装带马达。


带盒装入后立即被退出。
装挂磁带时，IC8801销(9)/(8)的磁带始端/磁带终端感应器的电平是否由高(H)转为低(L)?
否
检查磁带始端/磁带终端感应器以及与IC8801相接的所有线路。
是
装挂磁带时，IC8801销(70)的盒室控制开关的电平是否由0.8V转为0V，并0V转为2.5V？
否
检查盒室控制开关以及与IC8801相接的所有线路。
是
更换IC8801。

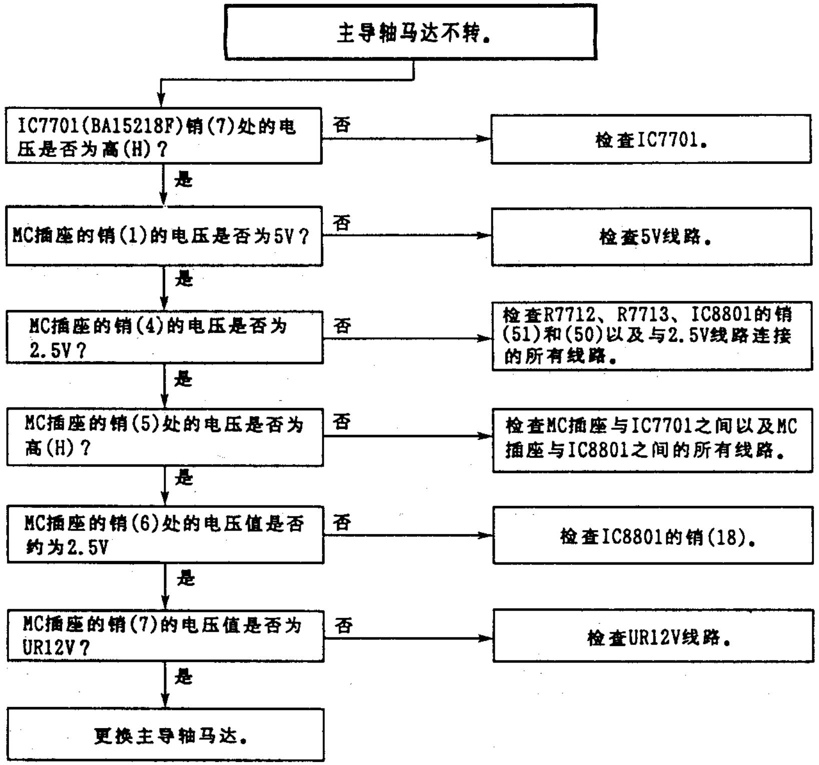
装带马达以及出盒动作的故障检修

流程图1-5


带盒不退出。
触按出盒(EJECT)键后，主导轴直接驱动马达是否开始转动？
否
进行流程图1-7的检查。
是
主导轴马达转动时，卷带盘是否转动？
否
检查带盘座以及带盘驱动装置。
是
卷带盘转动时，EA插座的销(13)处有无带盘脉冲出现？
无
检查带盘感应器。
有
卷带盘转动时，IC8801的销(69)处有无脉冲出现？
无
检查EA插座的销(13)以及与IC8801和Q8809连接的所有线路。
有
带盘脉冲输入时，IC8803销(6)处是否为高(H)电平？
否
检查IC8803的销(6)以及与IC8801销(11)连接的所有线路。
是
IC8803销(10)处的电压值是否为11V？
否
检查IC8803，以确认其销(5)处是否为低(L)电平。
是
装带马达接续端的电压是否正确？
否
检查IC8803以及与装带马达连接的所有线路。
是
装带马达转动否？
否
更换装带马达。
转
更换装带凸轮、齿轮等。

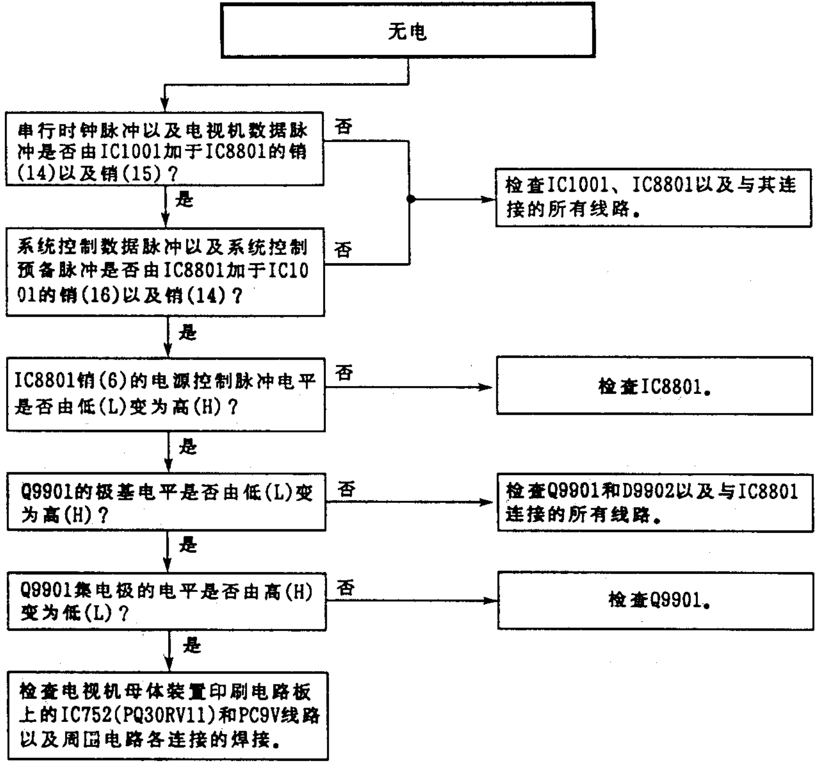
主导轴马达的故障检修

流程图1-7


主导轴马达不转。
IC7701(BA15218F)销(7)处的电压是否为高(H)？
否
检查IC7701。
是
MC插座的销(1)的电压是否为5V？
否
检查5V线路。
是
MC插座的销(4)的电压是否为2.5V？
否
检查R7712、R7713、IC8801的销(51)和(50)以及与2.5V线路连接的所有线路。
是
MC插座的销(5)处的电压是否为高(H)？
否
检查MC插座与IC7701之间以及MC插座与IC8801之间的所有线路。
是
MC插座的销(6)处的电压值是否约为2.5V
否
检查IC8801的销(18)。
是
MC插座的销(7)的电压值是否为UR12V？
否
检查UR12V线路。
是
更换主导轴马达。

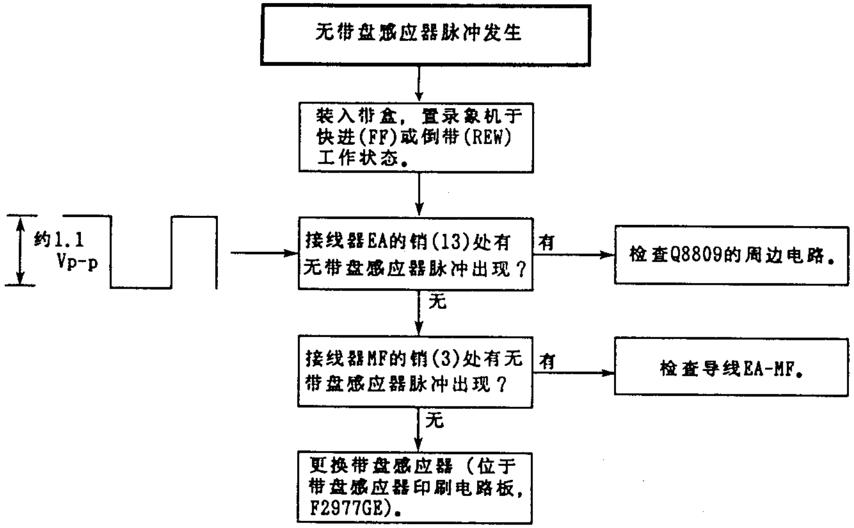
系统控制电路的故障检修

流程图1-6


无电
串行时钟脉冲以及电视机数据脉冲是否由IC1001加于IC8801的销(14)以及销(15)？
否
检查IC1001、IC8801以及与其连接的所有线路。
是
系统控制数据脉冲以及系统控制预备脉冲是否由IC8801加于IC1001的销(16)以及销(14)？
否
是
IC8801销(6)的电源控制脉冲电平是否由低(L)变为高(H)？
否
检查IC8801。
是
Q9901的极基电平是否由低(L)变为高(H)？
否
检查Q9901和D9902以及与IC8801连接的所有线路。
是
Q9901集电极的电平是否由高(H)变为低(L)？
否
检查Q9901。
是
检查电视机母体装置印刷电路板上的IC752(PQ30RV11)和PC9V线路以及周围电路各连接的焊接。

卷带盘脉冲发生器的故障检修

流程图1-8


无带盘感应器脉冲发生

装入带盒，置录象机于快进(FF)或倒带(REW)工作状态。

接线器EA的销(13)处有无带盘感应器脉冲出现？

有 → 检查Q8809的周边电路。

无 ↓

接线器MF的销(3)处有无带盘感应器脉冲出现？

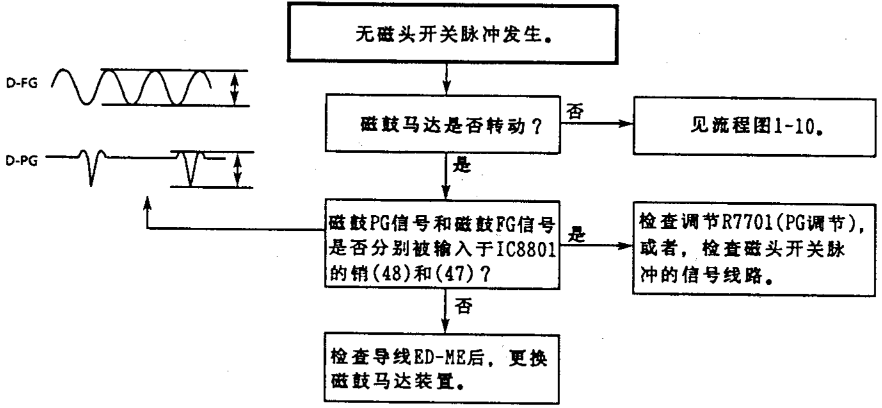
有 → 检查导线EA-MF。

无 ↓

更换带盘感应器（位于带盘感应器印刷电路板，F2977GE)。

磁头开关脉冲的故障检修

流程图1-9


无磁头开关脉冲发生。

磁鼓马达是否转动？

否 → 见流程图1-10。

是 ↓

磁鼓PG信号和磁鼓FG信号是否分别被输入于IC8801的销(48)和(47)？

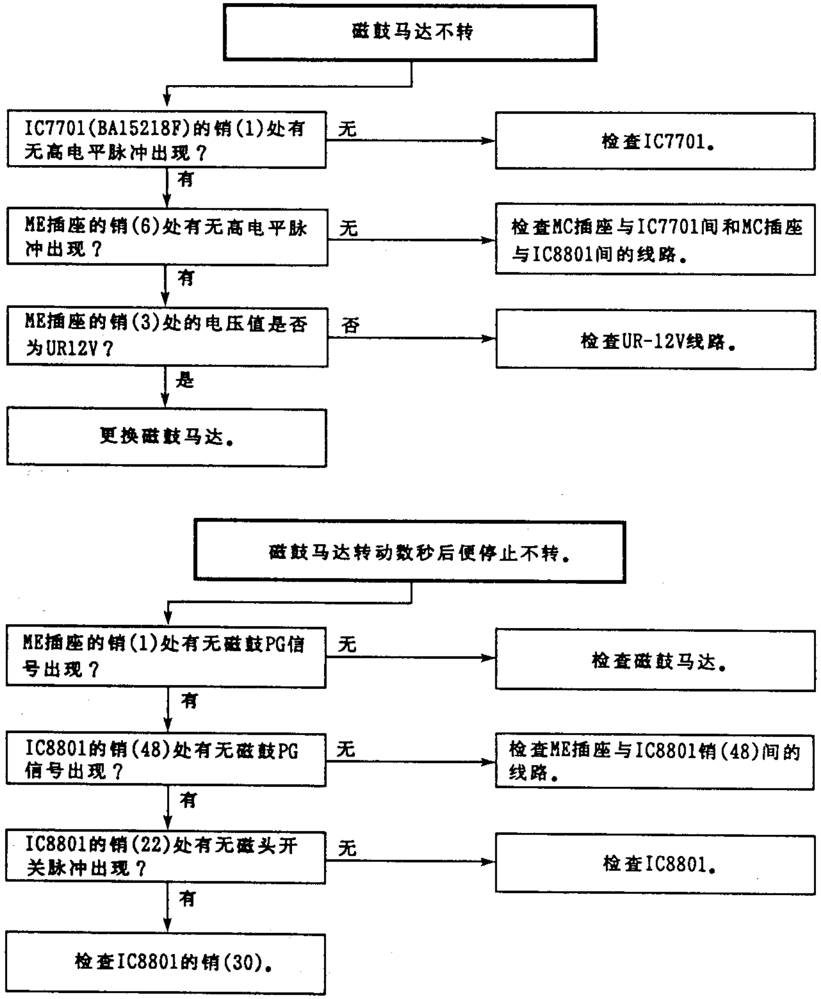
是 → 检查调节R7701(PG调节)，或者，检查磁头开关脉冲的信号线路。

否 ↓

检查导线ED-ME后，更换磁鼓马达装置。

磁鼓马达的故障检修

流程图1-10


磁鼓马达不转

IC7701(BA15218F)的销(1)处有无高电平脉冲出现？

无 → 检查IC7701。

有 ↓

ME插座的销(6)处有无高电平脉冲出现？

无 → 检查MC插座与IC7701间和MC插座与IC8801间的线路。

有 ↓

ME插座的销(3)处的电压值是否为UR12V？

否 → 检查UR-12V线路。

是 ↓

更换磁鼓马达。

磁鼓马达转动数秒后便停止不转。

ME插座的销(1)处有无磁鼓PG信号出现？

无 → 检查磁鼓马达。

有 ↓

IC8801的销(48)处有无磁鼓PG信号出现？

无 → 检查ME插座与IC8801销(48)间的线路。

有 ↓

IC8801的销(22)处有无磁头开关脉冲出现？

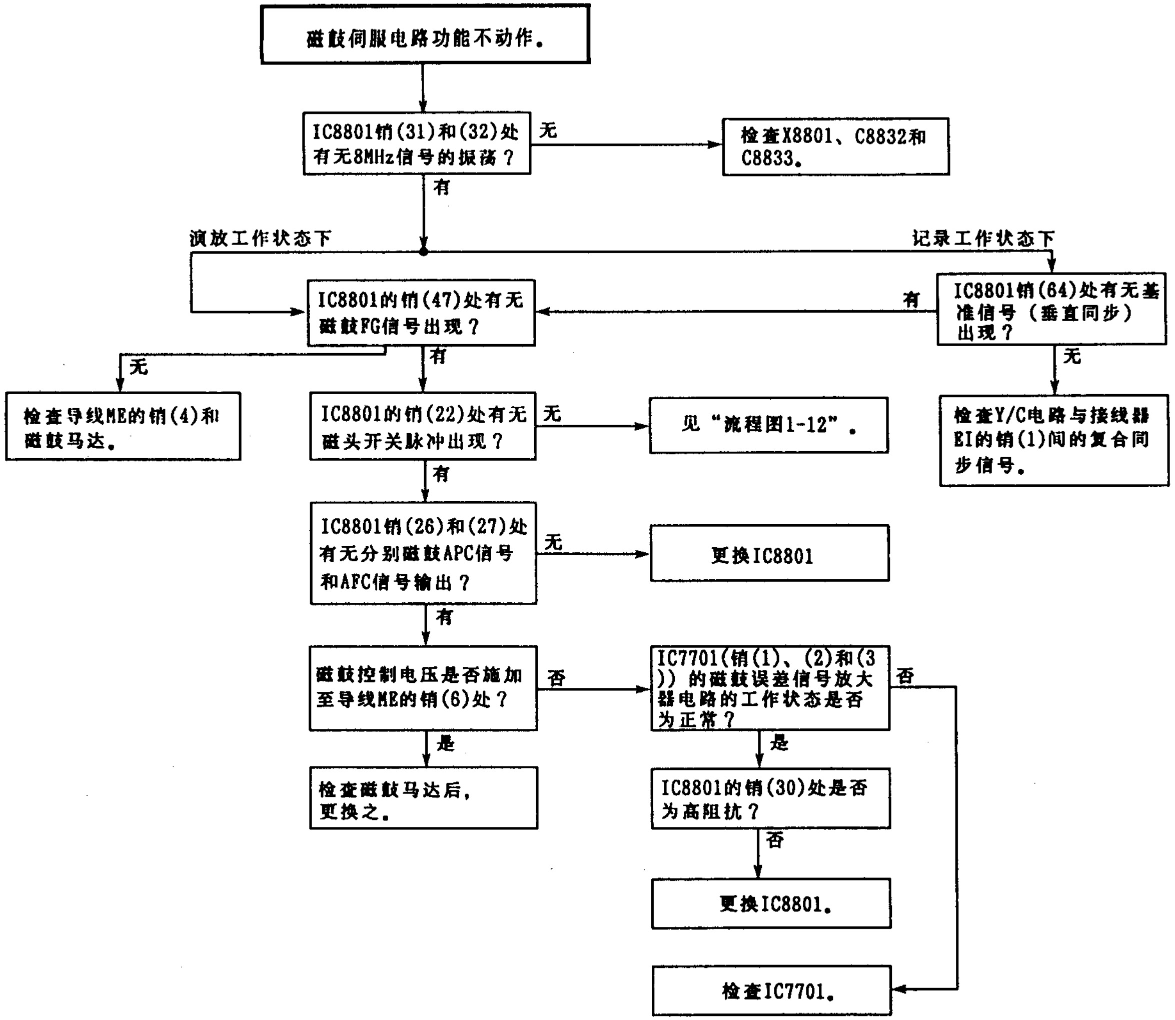
无 → 检查IC8801。

有 ↓

检查IC8801的销(30)。

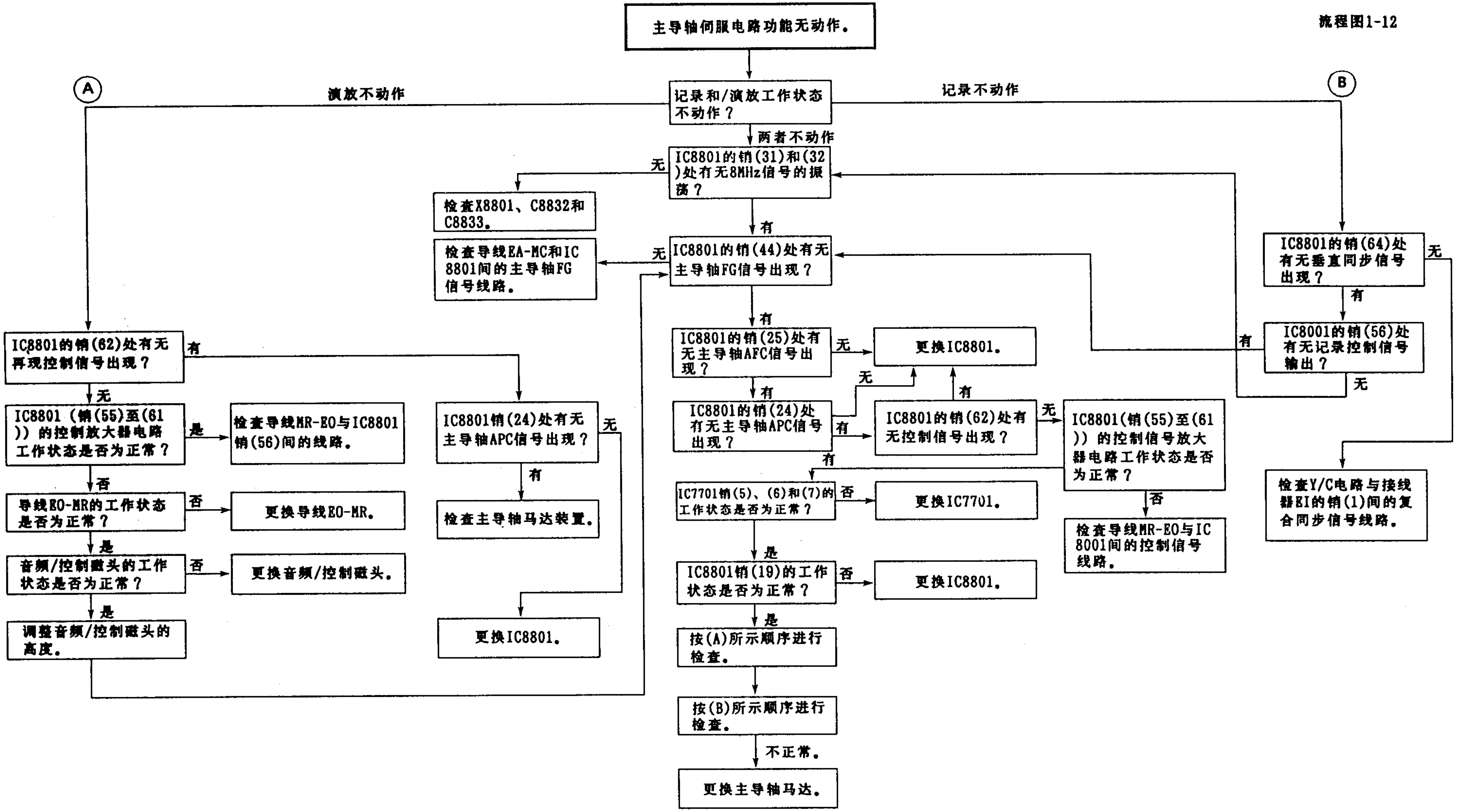
流程图1-11

磁鼓伺服电路的故障检修

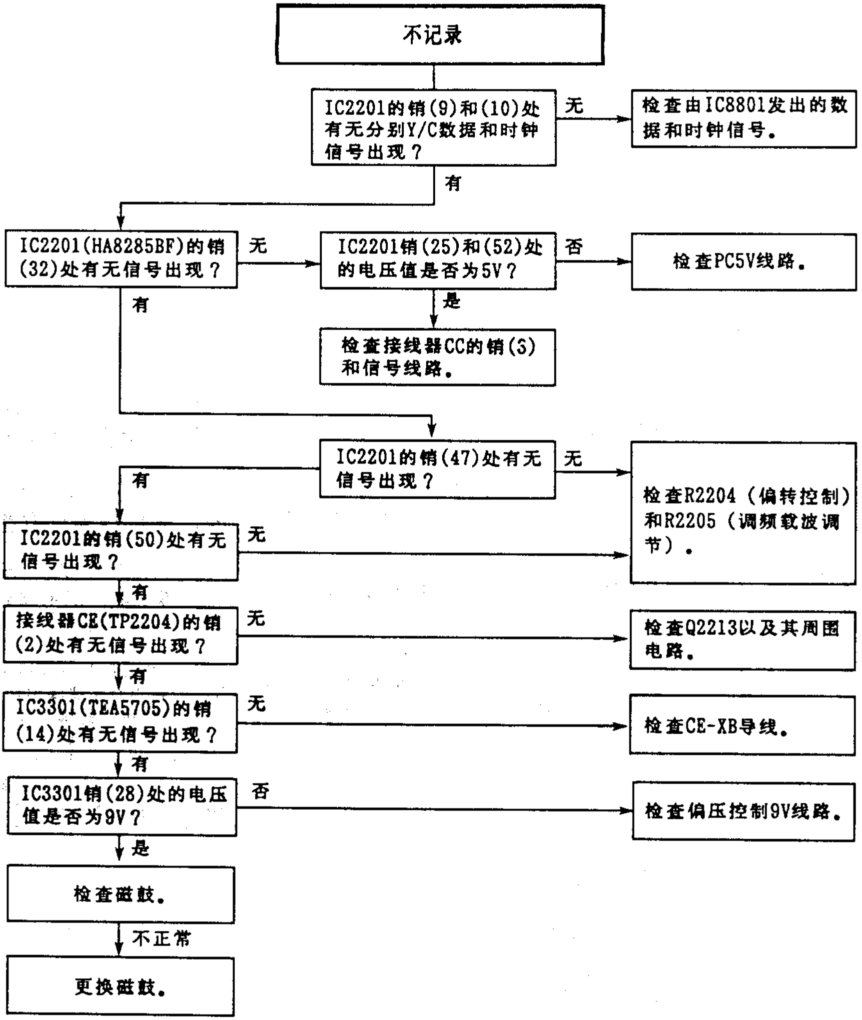

磁鼓伺服电路功能不动作。
IC8801销(31)和(32)处有无8MHz信号的振荡？
无
检查X8801、C8832和C8833。
有
演放工作状态下
记录工作状态下
IC8801的销(47)处有无磁鼓FG信号出现？
有
IC8801销(64)处有无基准信号（垂直同步）出现？
无
检查Y/C电路与接线器EI的销(1)间的复合同步信号。
无
检查导线ME的销(4)和磁鼓马达。
有
IC8801的销(22)处有无磁头开关脉冲出现？
无
见“流程图1-12”。
有
IC8801销(26)和(27)处有无分别磁鼓APC信号和AFC信号输出？
无
更换IC8801
有
磁鼓控制电压是否施加至导线ME的销(6)处？
否
IC7701(销(1)、(2)和(3))的磁鼓误差信号放大器电路的工作状态是否为正常？
否
是
检查磁鼓马达后，更换之。
是
IC8801的销(30)处是否为高阻抗？
否
更换IC8801。
检查IC7701。

主导轴伺服电路的故障检修

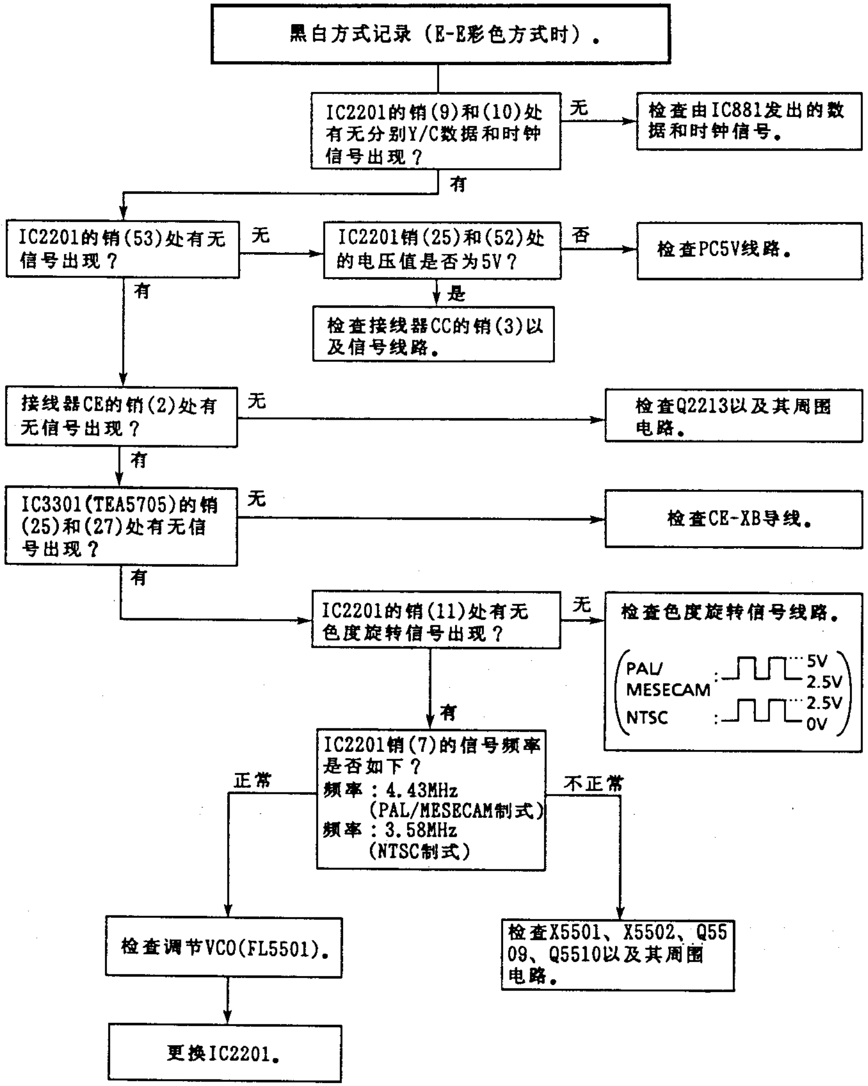
流程图1-12


主导轴伺服电路功能无动作。
记录和/演放工作状态不动作？
演放不动作
记录不动作
两者不动作
A
B
IC8801的销(31)和(32)处有无8MHz信号的振荡？
无
检查X8801、C8832和C8833。
有
IC8801的销(44)处有无主导轴FG信号出现？
无
检查导线EA-MC和IC8801间的主导轴FG信号线路。
有
IC8801的销(25)处有无主导轴AFC信号出现？
无
更换IC8801。
有
IC8801的销(24)处有无主导轴APC信号出现？
无
有
IC8801的销(62)处有无控制信号出现？
有
无
IC8801(销(55)至(61))的控制信号放大器电路工作状态是否为正常？
有
否
检查导线MR-EO与IC8801间的控制信号线路。
IC7701销(5)、(6)和(7)的工作状态是否为正常？
否
更换IC7701。
是
IC8801销(19)的工作状态是否为正常？
否
更换IC8801。
是
按(A)所示顺序进行检查。
按(B)所示顺序进行检查。
不正常。
更换主导轴马达。
IC8801的销(62)处有无再现控制信号出现？
有
IC8801销(24)处有无主导轴APC信号出现？
有
检查主导轴马达装置。
无
更换IC8801。
无
IC8801（销(55)至(61)）的控制放大器电路工作状态是否为正常？
是
检查导线MR-EO与IC8801销(56)间的线路。
否
导线EO-MR的工作状态是否为正常？
否
更换导线EO-MR。
是
音频/控制磁头的工作状态是否为正常？
否
更换音频/控制磁头。
是
调整音频/控制磁头的高度。
IC8801的销(64)处有无垂直同步信号出现？
无
检查Y/C电路与接线器EI的销(1)间的复合同步信号线路。
有
IC8001的销(56)处有无记录控制信号输出？
有
无

录象机记录（录象）状态（亮度）的故障检修 流程图1-13

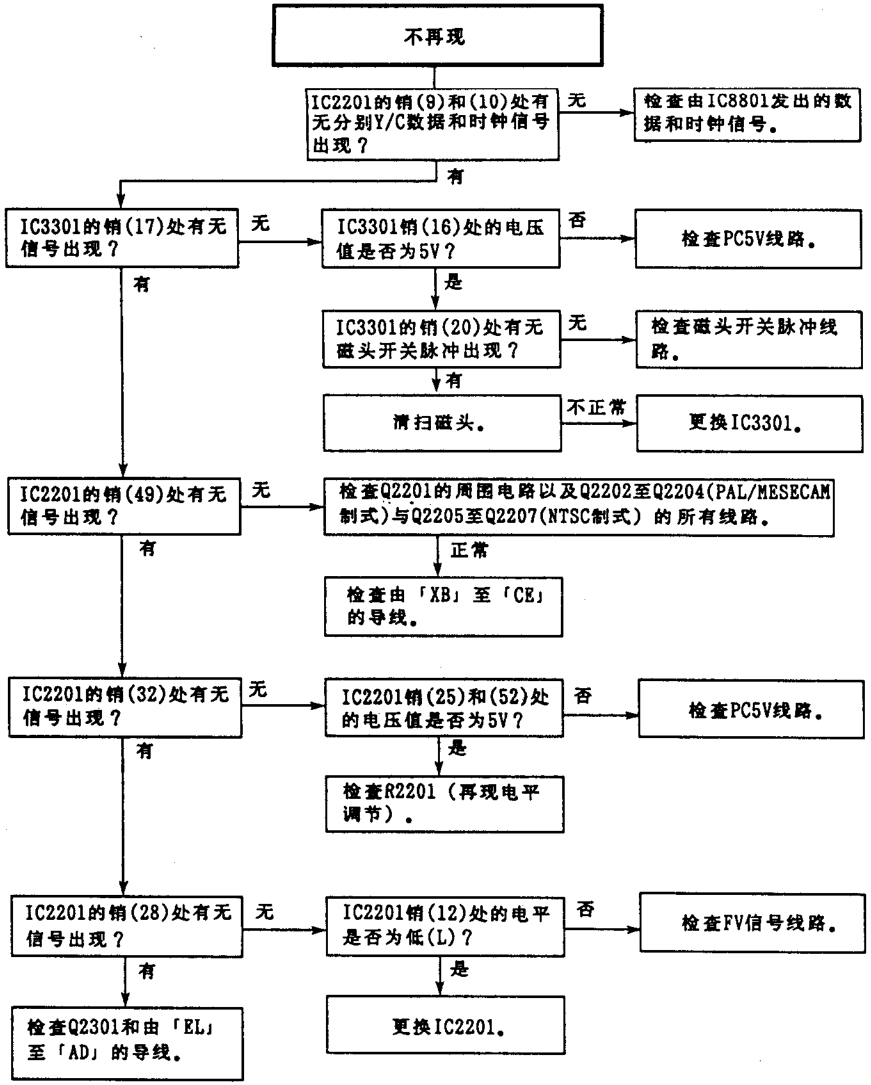

不记录
IC2201的销(9)和(10)处有无分别Y/C数据和时钟信号出现？
无
检查由IC8801发出的数据和时钟信号。
有
IC2201(HA8285BF)的销(32)处有无信号出现？
无
IC2201销(25)和(52)处的电压值是否为5V？
否
检查PC5V线路。
是
检查接线器CC的销(3)和信号线路。
有
IC2201的销(47)处有无信号出现？
无
检查R2204（偏转控制）和R2205（调频载波调节）。
有
IC2201的销(50)处有无信号出现？
无
有
接线器CE(TP2204)的销(2)处有无信号出现？
无
检查Q2213以及其周围电路。
有
IC3301(TEA5705)的销(14)处有无信号出现？
无
检查CE-XB导线。
有
IC3301销(28)处的电压值是否为9V？
否
检查偏压控制9V线路。
是
检查磁鼓。
不正常
更换磁鼓。

录象机记录（录象）状态（色度）的故障检修 流程图1-14


黑白方式记录（E-E彩色方式时）。
IC2201的销(9)和(10)处有无分别Y/C数据和时钟信号出现？
无
检查由IC881发出的数据和时钟信号。
有
IC2201的销(53)处有无信号出现？
无
IC2201销(25)和(52)处的电压值是否为5V？
否
检查PC5V线路。
是
检查接线器CC的销(3)以及信号线路。
有
接线器CE的销(2)处有无信号出现？
无
检查Q2213以及其周围电路。
有
IC3301(TEA5705)的销(25)和(27)处有无信号出现？
无
检查CE-XB导线。
有
IC2201的销(11)处有无色度旋转信号出现？
无
检查色度旋转信号线路。
PAL/MESECAM
5V
2.5V
NTSC
2.5V
0V
有
IC2201销(7)的信号频率是否如下？
频率：4.43MHz (PAL/MESECAM制式)
频率：3.58MHz (NTSC制式)
正常
检查调节VCO(FL5501)。
更换IC2201。
不正常
检查X5501、X5502、Q5509、Q5510以及其周围电路。

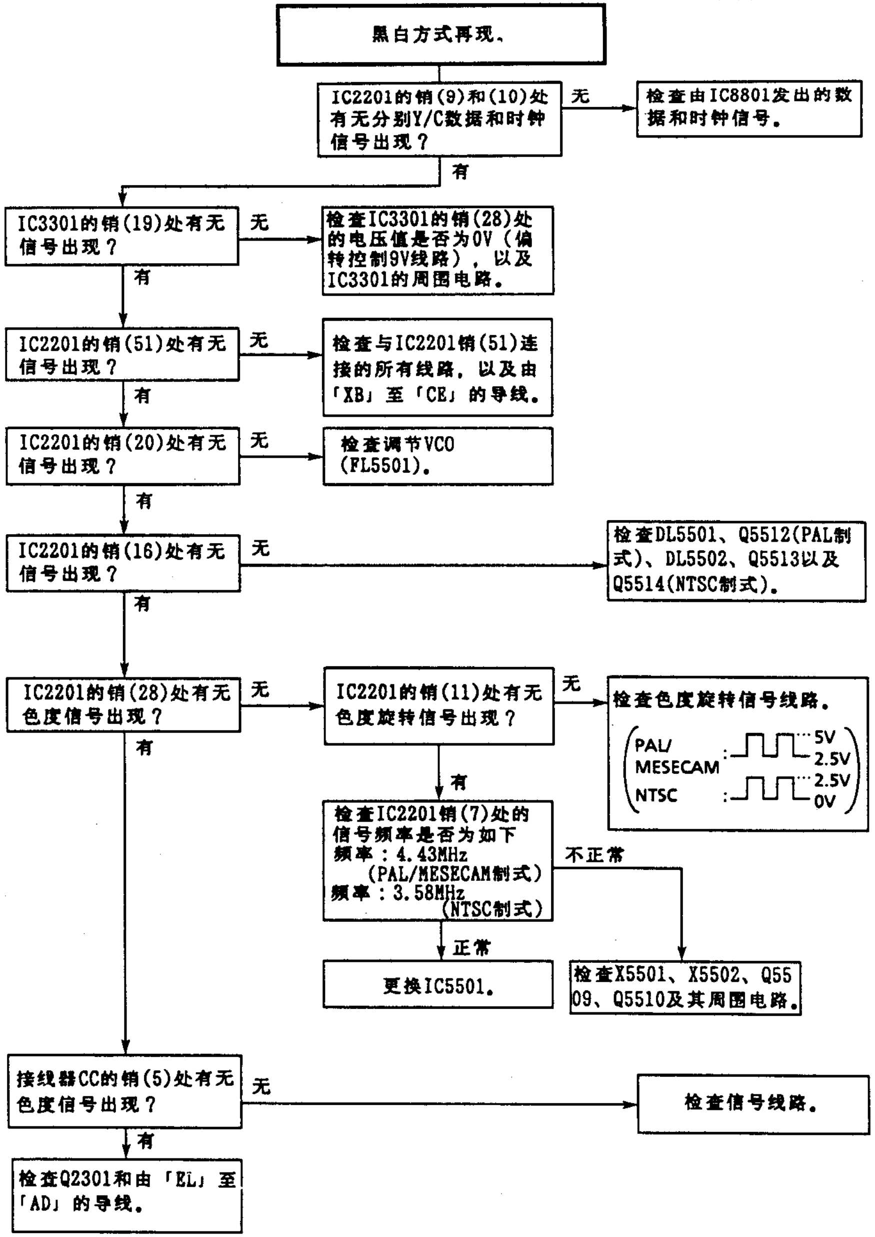
录象机再现状态（亮度）的故障检修

流程图1-15

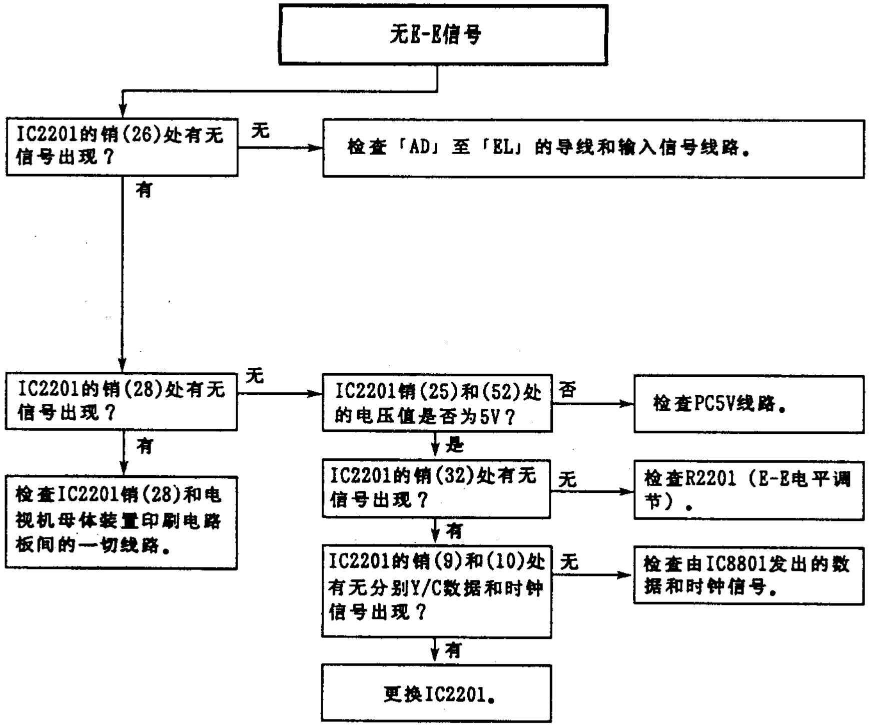

不再现
IC2201的销(9)和(10)处有无分别Y/C数据和时钟信号出现？
无
检查由IC8801发出的数据和时钟信号。
有
IC3301的销(17)处有无信号出现？
无
IC3301销(16)处的电压值是否为5V？
否
检查PC5V线路。
是
IC3301的销(20)处有无磁头开关脉冲出现？
无
检查磁头开关脉冲线路。
有
清扫磁头。
不正常
更换IC3301。
有
IC2201的销(49)处有无信号出现？
无
检查Q2201的周围电路以及Q2202至Q2204(PAL/MESECAM制式)与Q2205至Q2207(NTSC制式）的所有线路。
正常
检查由「XB」至「CE」的导线。
有
IC2201的销(32)处有无信号出现？
无
IC2201销(25)和(52)处的电压值是否为5V？
否
检查PC5V线路。
是
检查R2201（再现电平调节）。
有
IC2201的销(28)处有无信号出现？
无
IC2201销(12)处的电平是否为低(L)？
否
检查FV信号线路。
是
更换IC2201。
有
检查Q2301和由「EL」至「AD」的导线。

录象机再现状态（色度）的故障检修

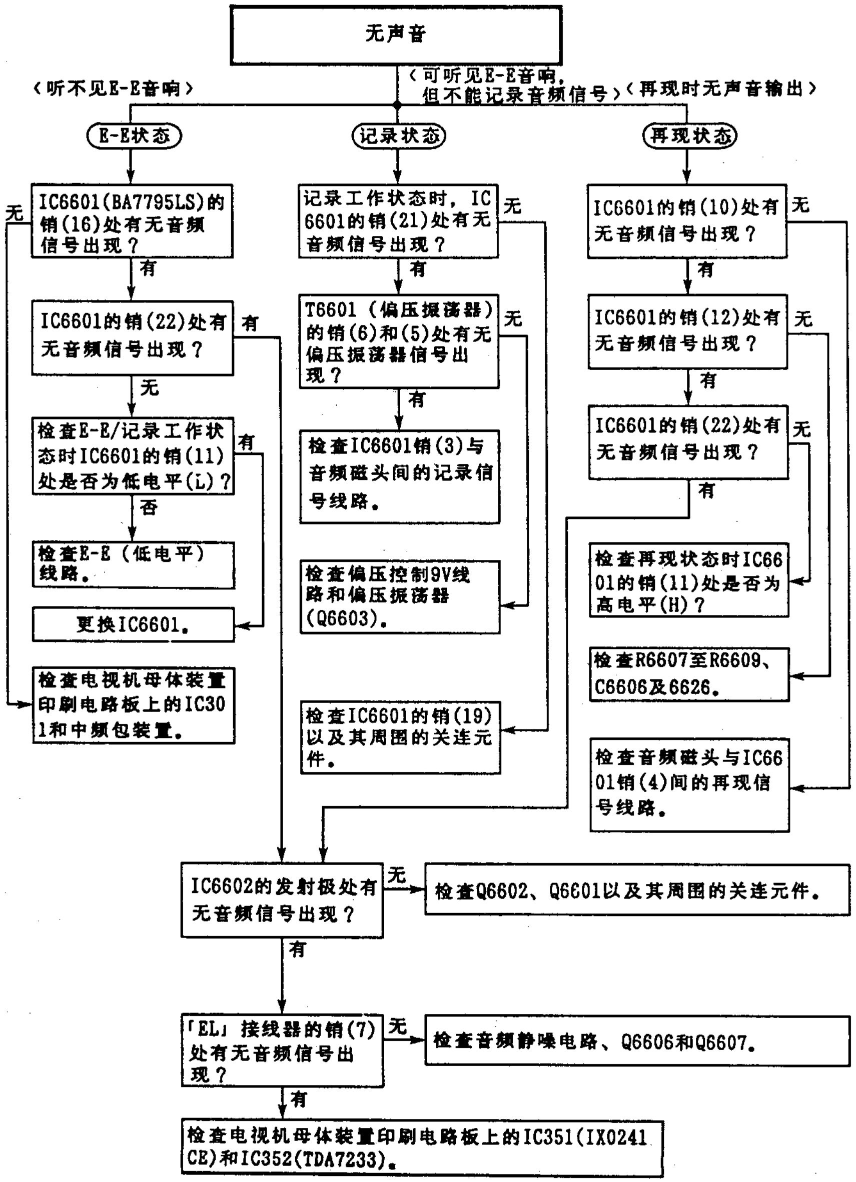
流程图1-16


黑白方式再现、
IC2201的销(9)和(10)处有无分别Y/C数据和时钟信号出现？
无
检查由IC8801发出的数据和时钟信号。
有
IC3301的销(19)处有无信号出现？
无
检查IC3301的销(28)处的电压值是否为0V（偏转控制9V线路），以及IC3301的周围电路。
有
IC2201的销(51)处有无信号出现？
无
检查与IC2201销(51)连接的所有线路，以及由「XB」至「CE」的导线。
有
IC2201的销(20)处有无信号出现？
无
检查调节VCO(FL5501)。
有
IC2201的销(16)处有无信号出现？
无
检查DL5501、Q5512(PAL制式)、DL5502、Q5513以及Q5514(NTSC制式)。
有
IC2201的销(28)处有无色度信号出现？
无
IC2201的销(11)处有无色度旋转信号出现？
无
检查色度旋转信号线路。
PAL/MESECAM
5V
2.5V
NTSC
2.5V
0V
有
检查IC2201销(7)处的信号频率是否为如下
频率：4.43MHz（PAL/MESECAM制式）
频率：3.58MHz（NTSC制式）
不正常
检查X5501、X5502、Q5509、Q5510及其周围电路。
正常
更换IC5501。
有
接线器CC的销(5)处有无色度信号出现？
无
检查信号线路。
有
检查Q2301和由「EL」至「AD」的导线。

录象机E-E方式的故障检修　　流程图1-17

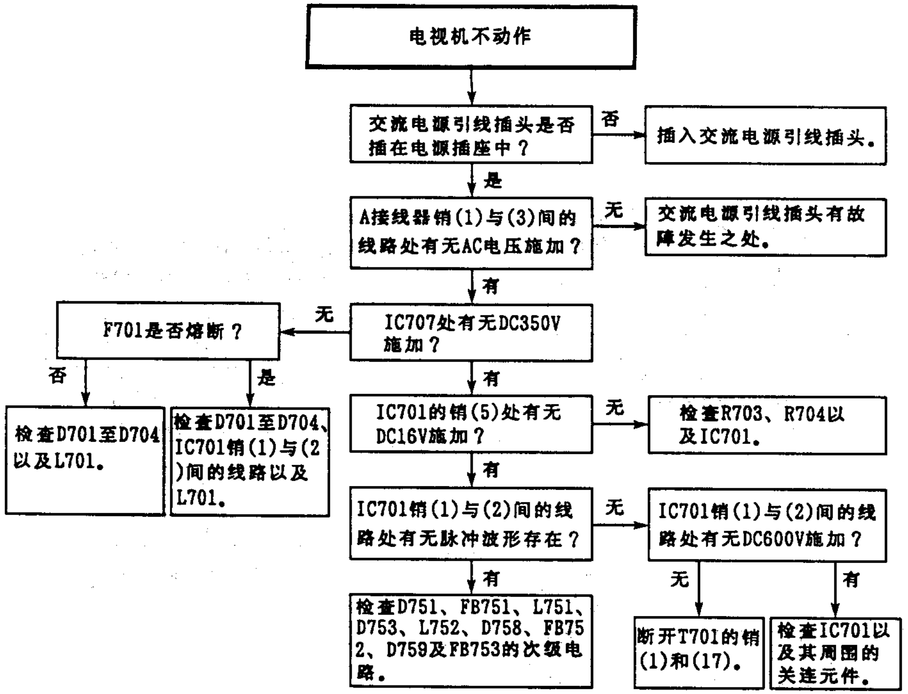

无E-E信号
IC2201的销(26)处有无信号出现？
无
检查「AD」至「EL」的导线和输入信号线路。
有
IC2201的销(28)处有无信号出现？
无
IC2201销(25)和(52)处的电压值是否为5V？
否
检查PC5V线路。
是
有
检查IC2201销(28)和电视机母体装置印刷电路板间的一切线路。
IC2201的销(32)处有无信号出现？
无
检查R2201（E-E电平调节）。
有
IC2201的销(9)和(10)处有无分别Y/C数据和时钟信号出现？
无
检查由IC8801发出的数据和时钟信号。
有
更换IC2201。

录象机音响装置的故障检修　　流程图1-18


无声音
〈听不见E-E音响〉
〈可听见E-E音响，但不能记录音频信号〉
〈再现时无声音输出〉
E-E状态
记录状态
再现状态
IC6601(BA7795LS)的销(16)处有无音频信号出现？
无
有
IC6601的销(22)处有无音频信号出现？
有
无
检查E-E/记录工作状态时IC6601的销(11)处是否为低电平(L)？
有
否
检查E-E（低电平）线路。
更换IC6601。
检查电视机母体装置印刷电路板上的IC301和中频包装置。
记录工作状态时，IC6601的销(21)处有无音频信号出现？
无
有
T6601（偏压振荡器）的销(6)和(5)处有无偏压振荡器信号出现？
无
有
检查IC6601销(3)与音频磁头间的记录信号线路。
检查偏压控制9V线路和偏压振荡器(Q6603)。
检查IC6601的销(19)以及其周围的关连元件。
IC6601的销(10)处有无音频信号出现？
无
有
IC6601的销(12)处有无音频信号出现？
无
有
IC6601的销(22)处有无音频信号出现？
无
有
检查再现状态时IC6601的销(11)处是否为高电平(H)？
检查R6607至R6609、C6606及6626。
检查音频磁头与IC6601销(4)间的再现信号线路。
IC6602的发射极处有无音频信号出现？
无
检查Q6602、Q6601以及其周围的关连元件。
有
「EL」接线器的销(7)处有无音频信号出现？
无
检查音频静噪电路、Q6606和Q6607。
有
检查电视机母体装置印刷电路板上的IC351(IX0241CE)和IC352(TDA7233)。

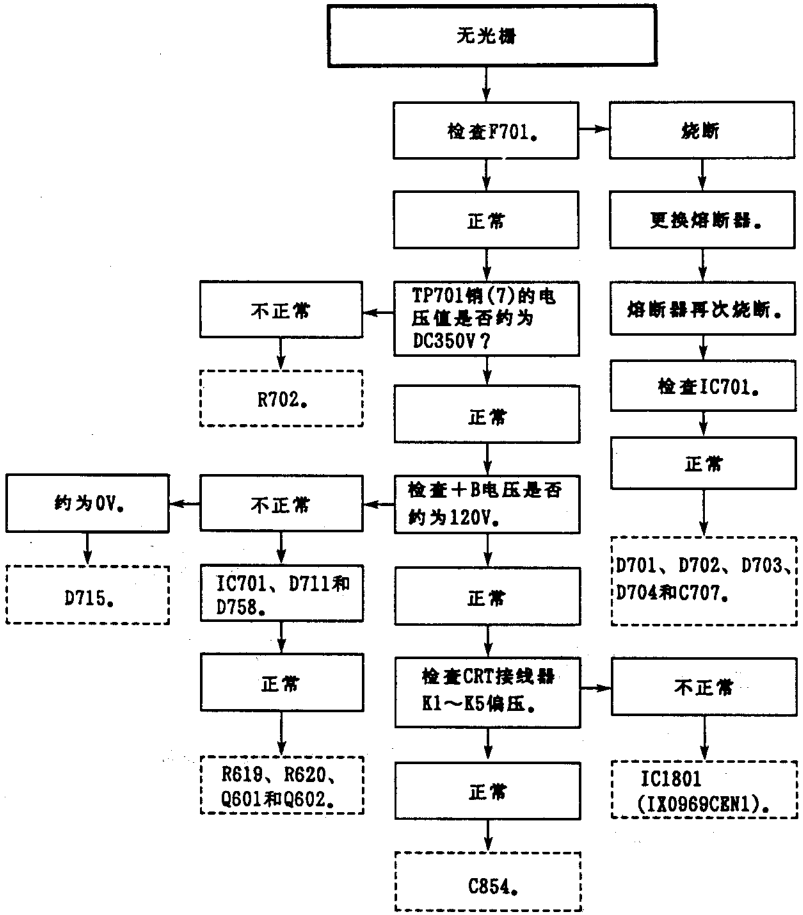
电视机的故障检修

流程图2-1


电视机不动作
交流电源引线插头是否插在电源插座中？
否
插入交流电源引线插头。
是
A接线器销(1)与(3)间的线路处有无AC电压施加？
无
交流电源引线插头有故障发生之处。
有
IC707处有无DC350V施加？
无
F701是否熔断？
否
检查D701至D704以及L701。
是
检查D701至D704、IC701销(1)与(2)间的线路以及L701。
有
IC701的销(5)处有无DC16V施加？
无
检查R703、R704以及IC701。
有
IC701销(1)与(2)间的线路处有无脉冲波形存在？
无
IC701销(1)与(2)间的线路处有无DC600V施加？
无
断开T701的销(1)和(17)。
有
检查IC701以及其周围的关连元件。
有
检查D751、FB751、L751、D753、L752、D758、FB752、D759及FB753的次级电路。

电视机的故障检修

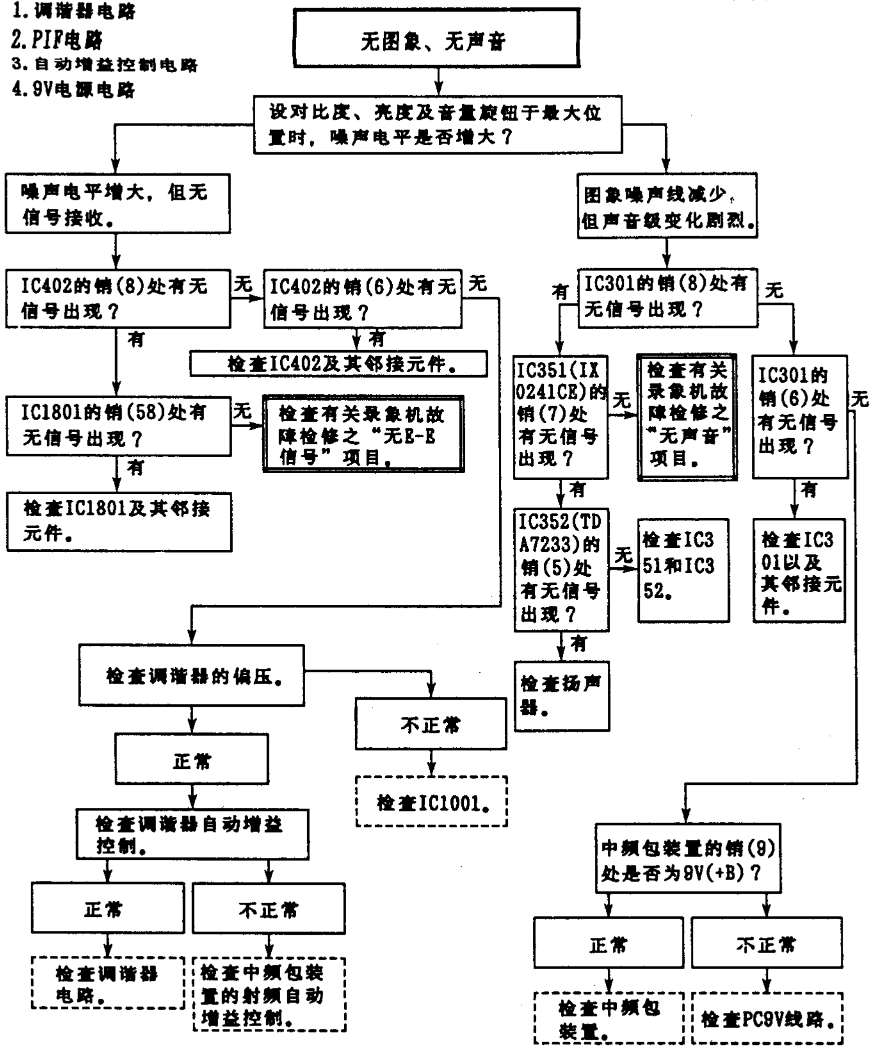
流程图2-2


无光栅
检查F701。
烧断
更换熔断器。
熔断器再次烧断。
检查IC701。
正常
D701、D702、D703、D704和C707。
正常
TP701销(7)的电压值是否约为DC350V？
不正常
R702。
正常
检查＋B电压是否约为120V。
不正常
约为0V。
D715。
IC701、D711和D758。
正常
R619、R620、Q601和Q602。
正常
检查CRT接线器K1～K5偏压。
不正常
IC1801 (IX0969CEN1)。
正常
C854。

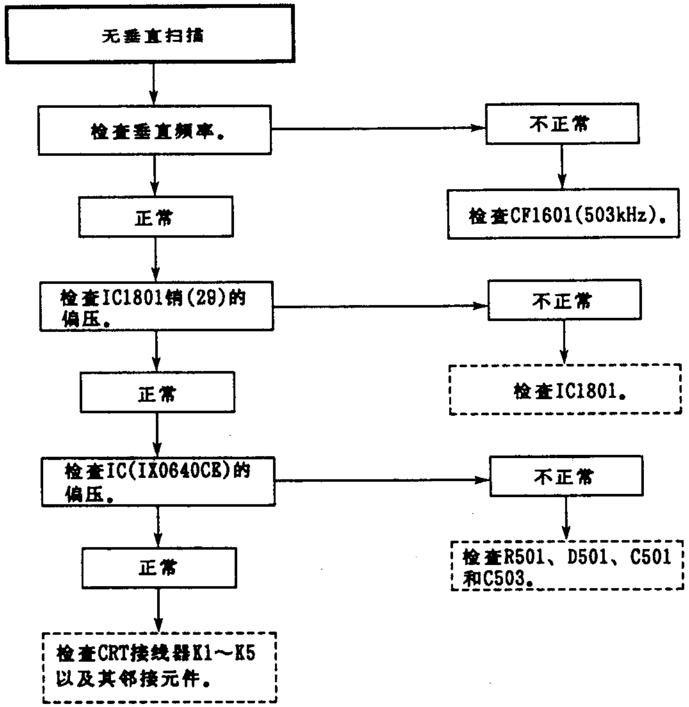
检查电路：

1. 调谐器电路
2. PIF电路
3. 自动增益控制电路
4. 9V电源电路

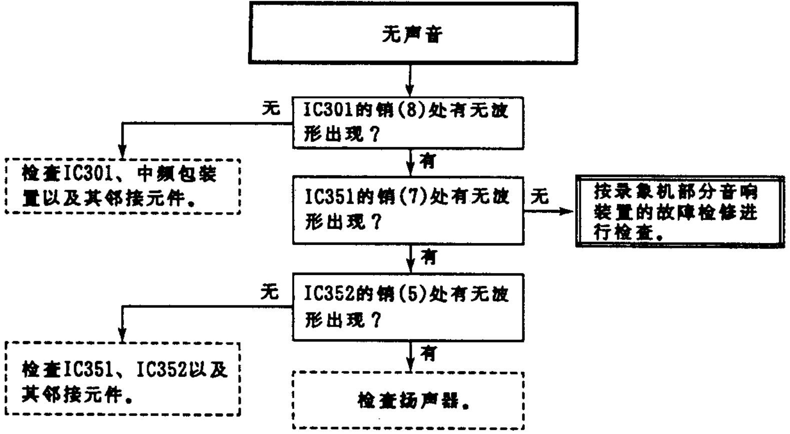
流程图2-3


无图象、无声音
设对比度、亮度及音量旋钮于最大位置时，噪声电平是否增大？
噪声电平增大，但无信号接收。
图象噪声线减少，但声音级变化剧烈。
IC402的销(8)处有无信号出现？
无
IC402的销(6)处有无信号出现？
无
有
检查IC402及其邻接元件。
有
IC1801的销(58)处有无信号出现？
无
检查有关录象机故障检修之“无E-E信号”项目。
有
检查IC1801及其邻接元件。
有
IC301的销(8)处有无信号出现？
无
IC351(IX0241CE)的销(7)处有无信号出现？
无
检查有关录象机故障检修之“无声音”项目。
IC301的销(6)处有无信号出现？
无
有
IC352(TDA7233)的销(5)处有无信号出现？
无
检查IC351和IC352。
有
检查扬声器。
有
检查IC301以及其邻接元件。
检查调谐器的偏压。
不正常
检查IC1001。
正常
检查调谐器自动增益控制。
正常
不正常
检查调谐器电路。
检查中频包装置的射频自动增益控制。
中频包装置的销(9)处是否为9V(+B)？
正常
不正常
检查中频包装置。
检查PC9V线路。

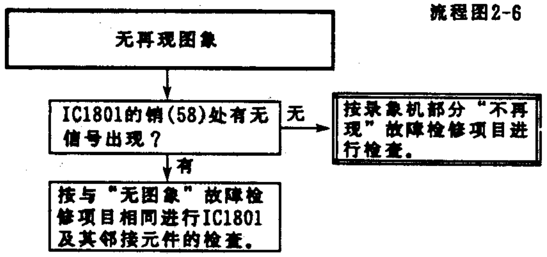
流程图2-4


无垂直扫描
检查垂直频率。
不正常
检查CF1601(503kHz)。
正常
检查IC1801销(29)的偏压。
不正常
检查IC1801。
正常
检查IC(IX0640CE)的偏压。
不正常
检查R501、D501、C501和C503。
正常
检查CRT接线器K1～K5以及其邻接元件。

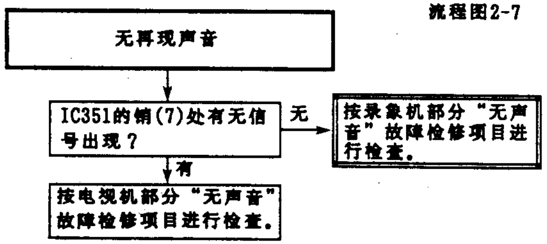
流程图2-5


无声音
IC301的销(8)处有无波形出现？
检查IC301、中频包装置以及其邻接元件。
IC351的销(7)处有无波形出现？
按录象机部分音响装置的故障检修进行检查。
IC352的销(5)处有无波形出现？
检查IC351、IC352以及其邻接元件。
检查扬声器。

流程图2-6

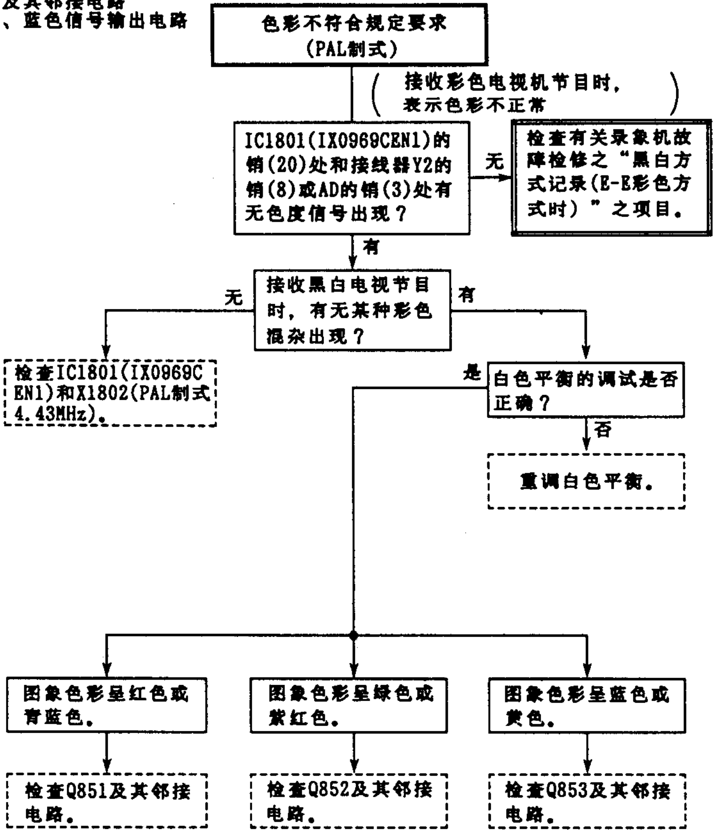

无再现图象
IC1801的销(58)处有无信号出现？
按录象机部分“不再现”故障检修项目进行检查。
按与“无图象”故障检修项目相同进行IC1801及其邻接元件的检查。

流程图2-7


无再现声音
IC351的销(7)处有无信号出现？
按录象机部分“无声音”故障检修项目进行检查。
按电视机部分“无声音”故障检修项目进行检查。

检查电路：
- ●IC1801及其邻接电路
- ●红、绿、蓝色信号输出电路

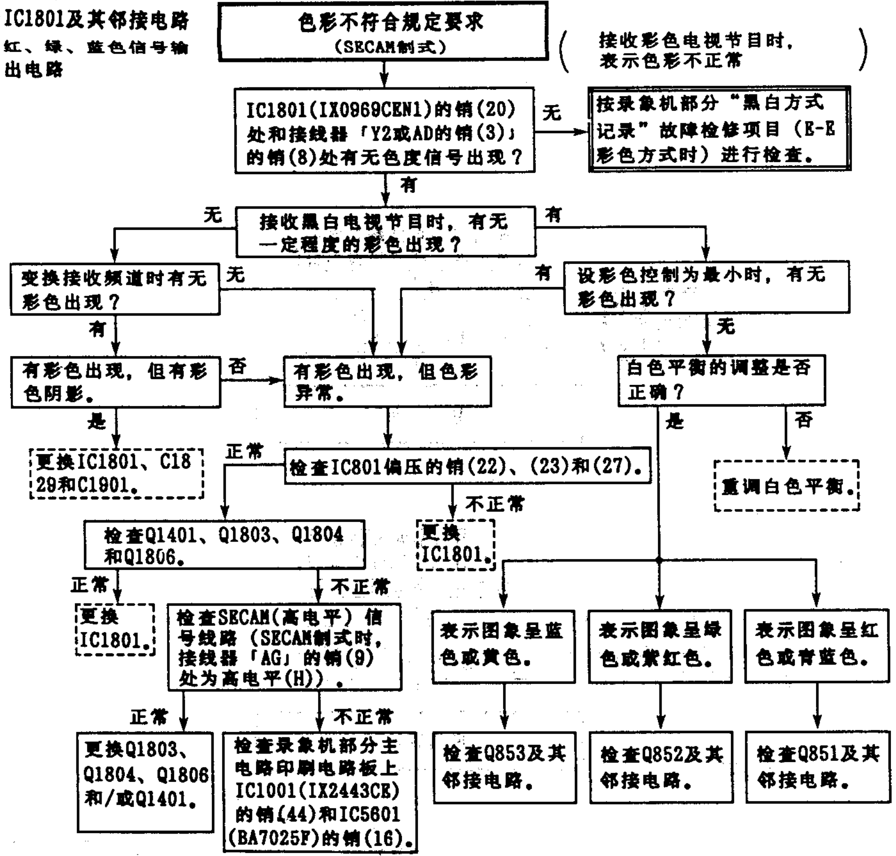
流程图2-8


色彩不符合规定要求（PAL制式）
（接收彩色电视机节目时，表示色彩不正常）
IC1801(IX0969CEN1)的销(20)处和接线器Y2的销(8)或AD的销(3)处有无色度信号出现？
检查有关录象机故障检修之“黑白方式记录(E-E彩色方式时)”之项目。
接收黑白电视节目时，有无某种彩色混杂出现？
检查IC1801(IX0969CEN1)和X1802(PAL制式4.43MHz)。
白色平衡的调试是否正确？
重调白色平衡。
图象色彩呈红色或青蓝色。
图象色彩呈绿色或紫红色。
图象色彩呈蓝色或黄色。
检查Q851及其邻接电路。
检查Q852及其邻接电路。
检查Q853及其邻接电路。

检查电路：

- IC1801及其邻接电路
- 红、绿、蓝色信号输出电路

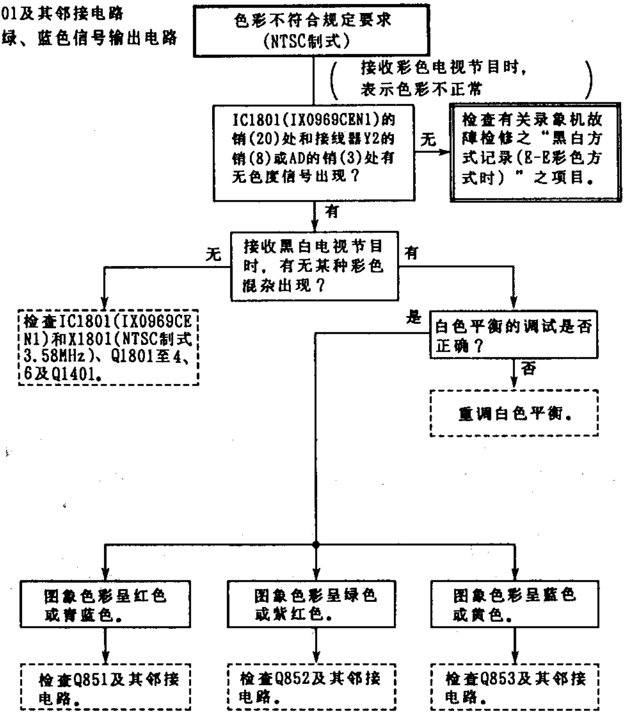
流程图2-9


色彩不符合规定要求
（SECAM制式）
（接收彩色电视节目时，表示色彩不正常）
IC1801(IX0969CEN1)的销(20)处和接线器「Y2或AD的销(3)」的销(8)处有无色度信号出现？
无
按录象机部分“黑白方式记录”故障检修项目（E-E彩色方式时）进行检查。
有
接收黑白电视节目时，有无一定程度的彩色出现？
无
有
变换接收频道时有无彩色出现？
无
有
设彩色控制为最小时，有无彩色出现？
有
无
有彩色出现，但有彩色阴影。
否
有彩色出现，但色彩异常。
白色平衡的调整是否正确？
是
否
是
更换IC1801、C1829和C1901。
正常
检查IC801偏压的销(22)、(23)和(27)。
重调白色平衡。
不正常
检查Q1401、Q1803、Q1804和Q1806。
更换IC1801。
正常
不正常
更换IC1801。
检查SECAM(高电平）信号线路（SECAM制式时，接线器「AG」的销(9)处为高电平(H)）。
表示图象呈蓝色或黄色。
表示图象呈绿色或紫红色。
表示图象呈红色或青蓝色。
正常
不正常
更换Q1803、Q1804、Q1806和/或Q1401。
检查录象机部分主电路印刷电路板上IC1001(IX2443CE)的销(44)和IC5601(BA7025F)的销(16)。
检查Q853及其邻接电路。
检查Q852及其邻接电路。
检查Q851及其邻接电路。

检查电路：

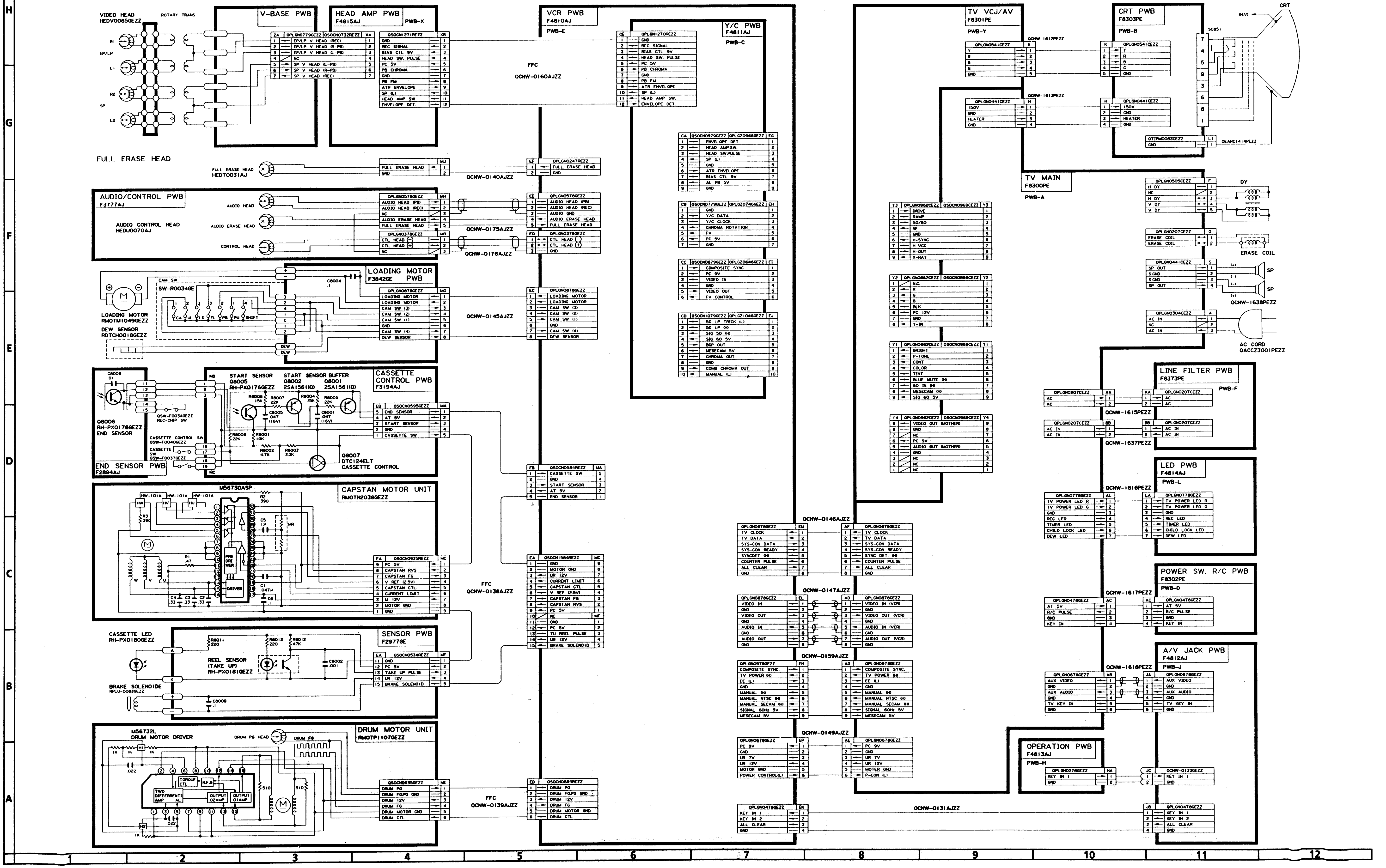
- IC1801及其邻接电路
- 红、绿、蓝色信号输出电路

流程图2-10


色彩不符合规定要求
(NTSC制式)
（接收彩色电视节目时，表示色彩不正常）
IC1801(IX0969CEN1)的销(20)处和接线器Y2的销(8)或AD的销(3)处有无色度信号出现？
无
检查有关录象机故障检修之“黑白方式记录(E-E彩色方式时）”之项目。
有
接收黑白电视节目时，有无某种彩色混杂出现？
无
有
检查IC1801(IX0969CEN1)和X1801(NTSC制式3.58MHz)、Q1801至4、6及Q1401。
是
白色平衡的调试是否正确？
否
重调白色平衡。
图象色彩呈红色或青蓝色。
图象色彩呈绿色或紫红色。
图象色彩呈蓝色或黄色。
检查Q851及其邻接电路。
检查Q852及其邻接电路。
检查Q853及其邻接电路。

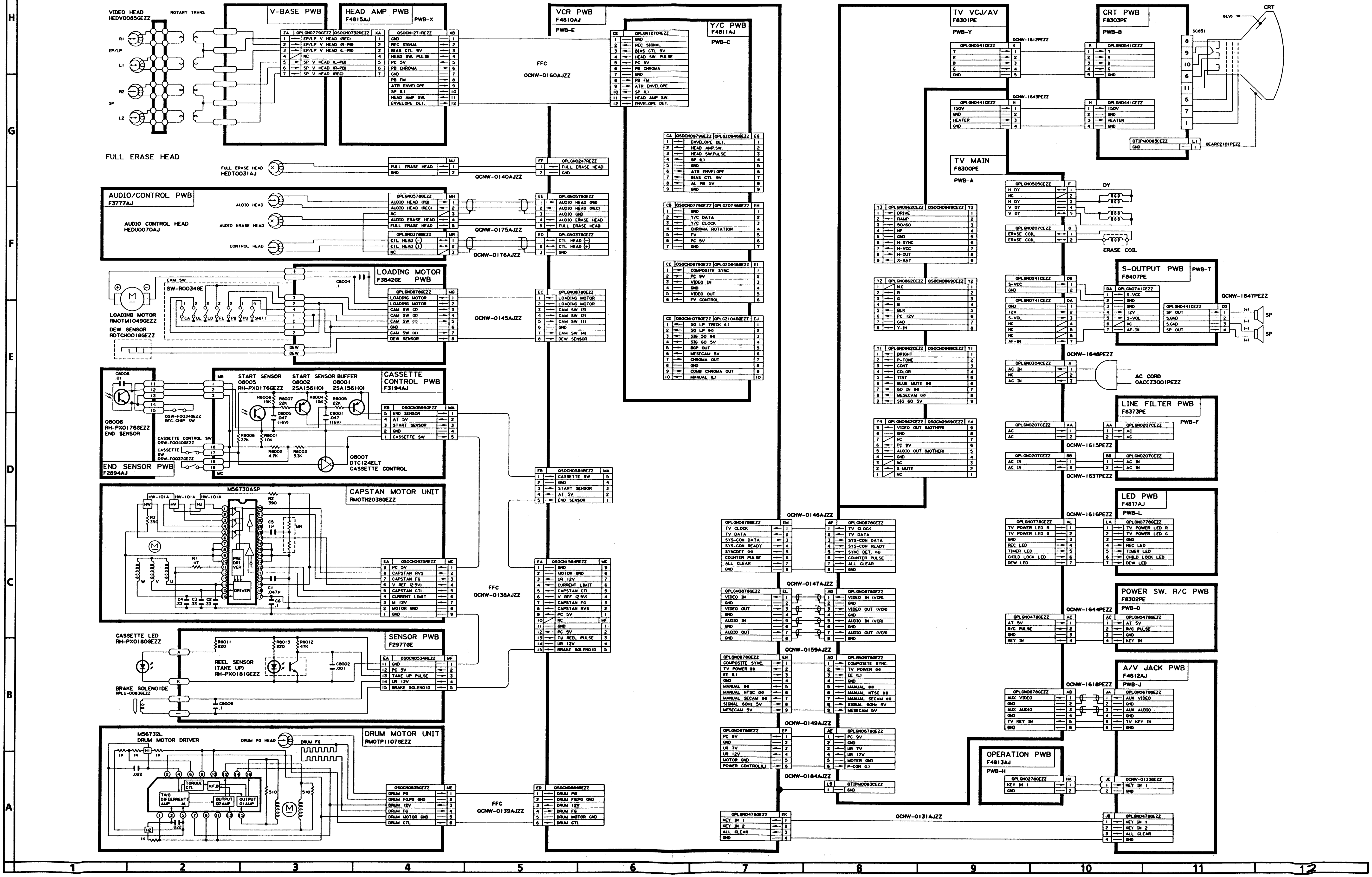
MODEL VT-1418M OVERALL SCHEMATIC DIAGRAM

VT-1418M型：整体电路原理图


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
VIDEO HEAD
HEDV0085GEZZ
ROTARY TRANS
V-BASE PWB
HEAD AMP PWB
F4815AJ
PWB-X
FFC
QCNW-0160AJZZ
VCR PWB
F4810AJ
PWB-E
Y/C PWB
F4811AJ
PWB-C
FULL ERASE HEAD
HEDT0031AJ
QCNW-0140AJZZ
AUDIO/CONTROL PWB
F3777AJ
AUDIO CONTROL HEAD
HEDU0070AJ
AUDIO HEAD
AUDIO ERASE HEAD
CONTROL HEAD
QCNW-0175AJZZ
QCNW-0176AJZZ
LOADING MOTOR
F3842GE PWB
LOADING MOTOR
RMOTM1049GEZZ
DEW SENSOR
RDTCH0018GEZZ
CAM SW
SW-R0034GE
QCNW-0145AJZZ
START SENSOR
START SENSOR BUFFER
CASSETTE CONTROL PWB
F3194AJ
Q8006
RH-PX0176GEZZ
END SENSOR
END SENSOR PWB
F2894AJ
Q8007
DTC124ELT
CASSETTE CONTROL
M56730ASP
CAPSTAN MOTOR UNIT
RMOTN2038GEZZ
FFC
QCNW-0138AJZZ
CASSETTE LED
RH-PX0180GEZZ
SENSOR PWB
F2977GE
REEL SENSOR
(TAKE UP)
RH-PX0181GEZZ
BRAKE SOLENOIDE
RPLU-0083GEZZ
M56732L
DRUM MOTOR DRIVER
DRUM MOTOR UNIT
RMOTP1107GEZZ
FFC
QCNW-0139AJZZ
QCNW-0146AJZZ
QCNW-0147AJZZ
QCNW-0159AJZZ
QCNW-0149AJZZ
QCNW-0131AJZZ
TV VCJ/AV
F8301PE
PWB-Y
QCNW-1612PEZZ
QCNW-1613PEZZ
CRT PWB
F8303PE
PWB-B
CRT
QEARC1414PEZZ
TV MAIN
F8300PE
PWB-A
DY
ERASE COIL
SP
SP
QCNW-1638PEZZ
AC CORD
QACCZ3001PEZZ
LINE FILTER PWB
F8373PE
PWB-F
QCNW-1615PEZZ
QCNW-1637PEZZ
LED PWB
F4814AJ
PWB-L
QCNW-1616PEZZ
POWER SW. R/C PWB
F8302PE
PWB-D
QCNW-1617PEZZ
A/V JACK PWB
F4812AJ
PWB-J
QCNW-1618PEZZ
OPERATION PWB
F4813AJ
PWB-H
QCNW-0133GEZZ

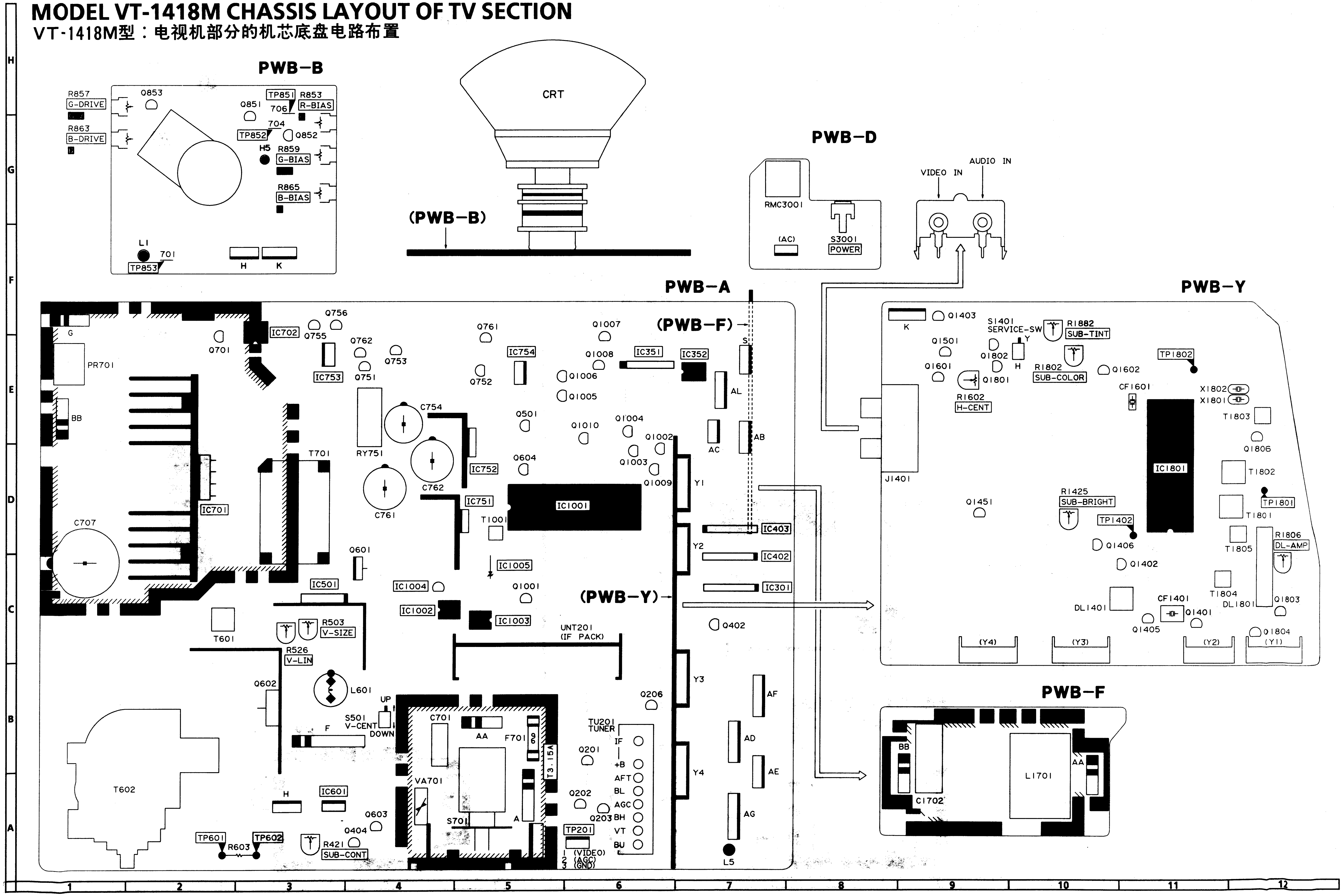
MODEL VT-2118M OVERALL SCHEMATIC DIAGRAM

VT-2118M型：整体电路原理图

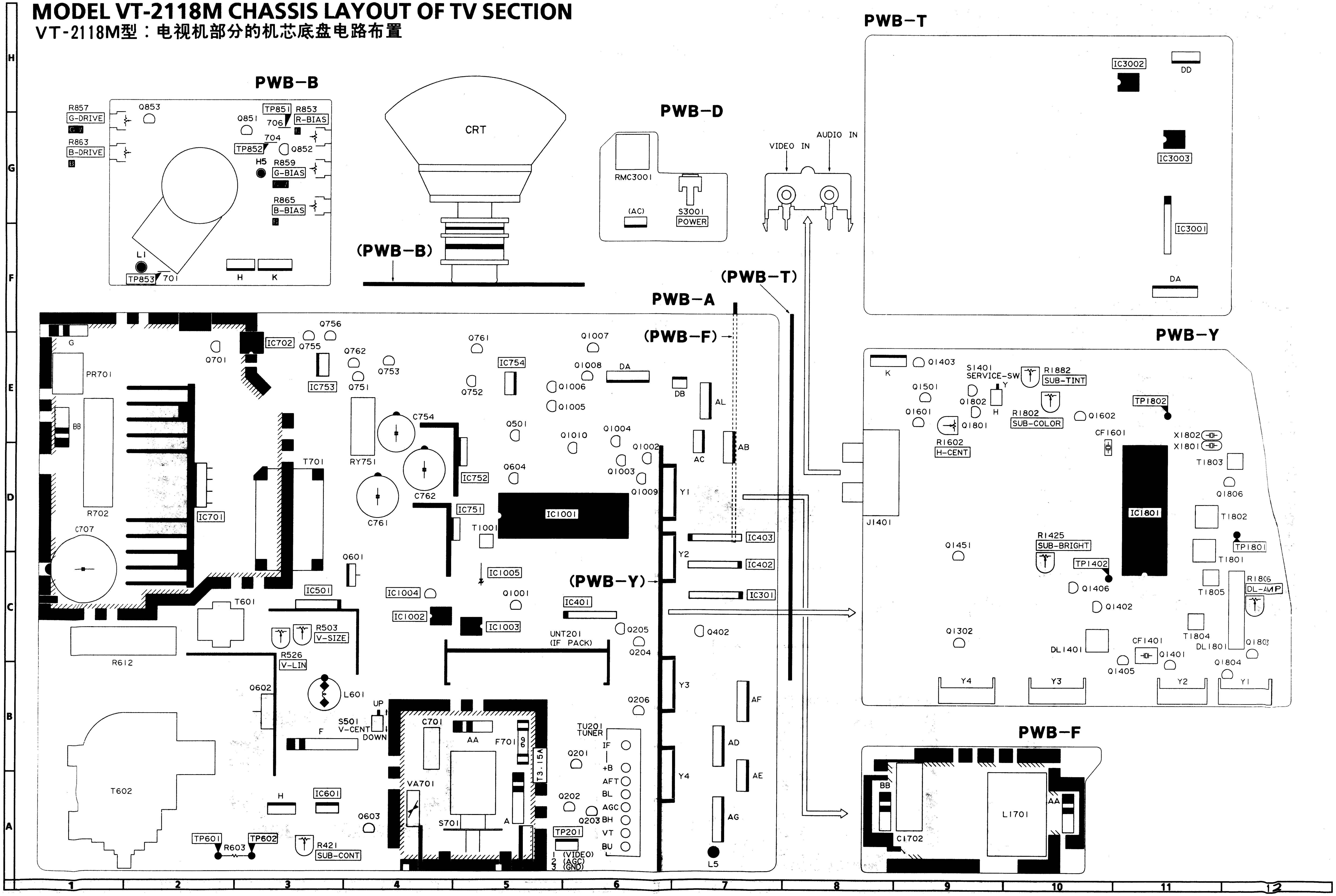

VIDEO HEAD HEDV0085GEZZ
ROTARY TRANS
V-BASE PWB
HEAD AMP PWB F4815AJ PWB-X
VCR PWB F4810AJ PWB-E
Y/C PWB F4811AJ PWB-C
FFC QCNW-0160AJZZ
FULL ERASE HEAD
FULL ERASE HEAD HEDT0031AJ
QCNW-0140AJZZ
AUDIO/CONTROL PWB F3777AJ
AUDIO CONTROL HEAD HEDU0070AJ
AUDIO HEAD
AUDIO ERASE HEAD
CONTROL HEAD
QCNW-0175AJZZ
QCNW-0176AJZZ
LOADING MOTOR F3842GE PWB
LOADING MOTOR RMOTM1049GEZZ
DEW SENSOR RDTCH0018GEZZ
CAM SW SW-R0034GE
QCNW-0145AJZZ
CASSETTE CONTROL PWB F3194AJ
START SENSOR Q8005 RH-PX0176GEZZ
START SENSOR BUFFER Q8002 Q8001 2SA1561(Q) 2SA1561(Q)
Q8006 RH-PX0176GEZZ END SENSOR
Q8007 DTC124ELT CASSETTE CONTROL
END SENSOR PWB F2894AJ
QSW-F0034GEZZ REC-CHIP SW
CASSETTE CONTROL SW QSW-F0040GEZZ
CASSETTE SW QSW-F0037GEZZ
CAPSTAN MOTOR UNIT RMOTN2038GEZZ
M56730ASP
FFC QCNW-0138AJZZ
SENSOR PWB F2977GE
CASSETTE LED RH-PX0180GEZZ
REEL SENSOR (TAKE UP) RH-PX0181GEZZ
BRAKE SOLENOIDE RPLU-0083GEZZ
DRUM MOTOR UNIT RMOTP1107GEZZ
M56732L DRUM MOTOR DRIVER
DRUM PG HEAD
DRUM FG
FFC QCNW-0139AJZZ
QCNW-0146AJZZ
QCNW-0147AJZZ
QCNW-0159AJZZ
QCNW-0149AJZZ
QCNW-0184AJZZ
QCNW-0131AJZZ
TV VCJ/AV F8301PE PWB-Y
QCNW-1612PEZZ
QCNW-1643PEZZ
CRT PWB F8303PE PWB-B
CRT
QEARC2101PEZZ
TV MAIN F8300PE PWB-A
DY
ERASE COIL
S-OUTPUT PWB F8407PE PWB-T
QCNW-1647PEZZ
SP
QCNW-1648PEZZ
AC CORD QACCZ3001PEZZ
LINE FILTER PWB F8373PE PWB-F
QCNW-1615PEZZ
QCNW-1637PEZZ
LED PWB F4817AJ PWB-L
QCNW-1616PEZZ
POWER SW. R/C PWB F8302PE PWB-D
QCNW-1644PEZZ
A/V JACK PWB F4812AJ PWB-J
QCNW-1618PEZZ
OPERATION PWB F4813AJ PWB-H
QCNW-0133GEZZ
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

MODEL VT-1418M CHASSIS LAYOUT OF TV SECTION

VT-1418M型：电视机部分的机芯底盘电路布置


PWB-B
R857
G-DRIVE
R863
B-DRIVE
Q853
Q851
TP851
R853
R-BIAS
706
704
TP852
Q852
H5
R859
G-BIAS
R865
B-BIAS
L1
701
TP853
H
K
CRT
(PWB-B)
PWB-D
RMC3001
(AC)
S3001
POWER
VIDEO IN
AUDIO IN
PWB-A
PWB-Y
G
PR701
BB
C707
IC701
Q756
IC702
Q755
Q701
Q762
Q753
IC753
Q751
Q761
Q752
IC754
Q1007
Q1008
IC351
IC352
(PWB-F)
S
Q1006
Q1005
AL
C754
RY751
T701
C762
C761
IC752
IC751
Q501
Q604
Q1010
Q1004
Q1002
Q1003
Q1009
AC
AB
Y1
IC1001
T1001
IC403
Y2
IC402
Q601
IC1005
IC501
IC1004
Q1001
IC301
IC1002
IC1003
(PWB-Y)
T601
R503
V-SIZE
R526
V-LIN
UNT201
(IF PACK)
Q402
Q602
L601
UP
S501
V-CENT
DOWN
F
C701
AA
F701
T3.15A
Q206
Y3
AF
TU201
TUNER
IF
+B
AFT
BL
AGC
BH
VT
BU
Q201
Q202
Q203
AD
AE
AG
Y4
T602
VA701
S701
A
H
IC601
Q603
Q404
TP601
R603
TP602
R421
SUB-CONT
TP201
1 (VIDEO)
2 (AGC)
3 (GND)
L5
K
Q1403
S1401
SERVICE-SW
Y
H
R1882
SUB-TINT
Q1501
Q1802
Q1601
Q1801
R1802
SUB-COLOR
Q1602
TP1802
R1602
H-CENT
CF1601
X1802
X1801
T1803
Q1806
J1401
IC1801
T1802
Q1451
R1425
SUB-BRIGHT
TP1801
T1801
TP1402
R1806
DL-AMP
Q1406
T1805
Q1402
T1804
DL1801
CF1401
DL1401
Q1401
Q1803
Q1405
Q1804
(Y4)
(Y3)
(Y2)
(Y1)
PWB-F
BB
AA
L1701
C1702
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

MODEL VT-2118M CHASSIS LAYOUT OF TV SECTION
VT-2118M型：电视机部分的机芯底盘电路布置


PWB-B
R857
G-DRIVE
Q853
R863
B-DRIVE
TP851
R853
R-BIAS
Q851
706
704
TP852
Q852
H5
R859
G-BIAS
R865
B-BIAS
L1
TP853
701
H
K
CRT
(PWB-B)
PWB-D
RMC3001
(AC)
S3001
POWER
VIDEO IN
AUDIO IN
PWB-T
IC3002
DD
IC3003
IC3001
DA
(PWB-T)
PWB-A
(PWB-F)
PWB-Y
G
PR701
BB
R702
C707
IC701
IC702
Q756
Q755
Q701
Q762
Q753
IC753
Q751
Q761
IC754
Q752
Q1007
Q1008
DA
Q1006
Q1005
DB
AL
C754
RY751
T701
C762
C761
IC752
IC751
T1001
IC1001
Q501
Q1010
Q1004
Q1002
Q604
Q1003
Q1009
AC
AB
Y1
Y2
Y3
Y4
IC403
IC402
IC301
Q601
IC1005
IC501
IC1004
Q1001
(PWB-Y)
T601
IC401
IC1002
IC1003
R503
V-SIZE
R526
V-LIN
UNT201
(IF PACK)
Q205
Q204
Q402
R612
Q602
L601
Q206
AF
UP
S501
V-CENT
DOWN
F
C701
AA
F701
T3.15A
TU201
TUNER
IF
Q201
+B
AFT
BL
AGC
BH
VT
BU
AD
AE
AG
T602
VA701
Q202
Q203
H
IC601
Q603
S701
A
TP201
1 (VIDEO)
2 (AGC)
3 (GND)
TP601
R603
TP602
R421
SUB-CONT
L5
K
Q1403
S1401
SERVICE-SW
Y
R1882
SUB-TINT
Q1501
Q1802
H
Q1601
Q1801
R1802
SUB-COLOR
TP1802
Q1602
R1602
H-CENT
CF1601
X1802
X1801
T1803
Q1806
J1401
IC1801
T1802
Q1451
R1425
SUB-BRIGHT
TP1402
TP1801
T1801
R1806
DL-AMP
Q1406
T1805
Q1402
Q1302
DL1401
CF1401
T1804
DL1801
Q1803
Q1401
Q1405
Q1804
Y4
Y3
Y2
Y1
PWB-F
BB
AA
L1701
C1702
H
G
F
E
D
C
B
A
1
2
3
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5
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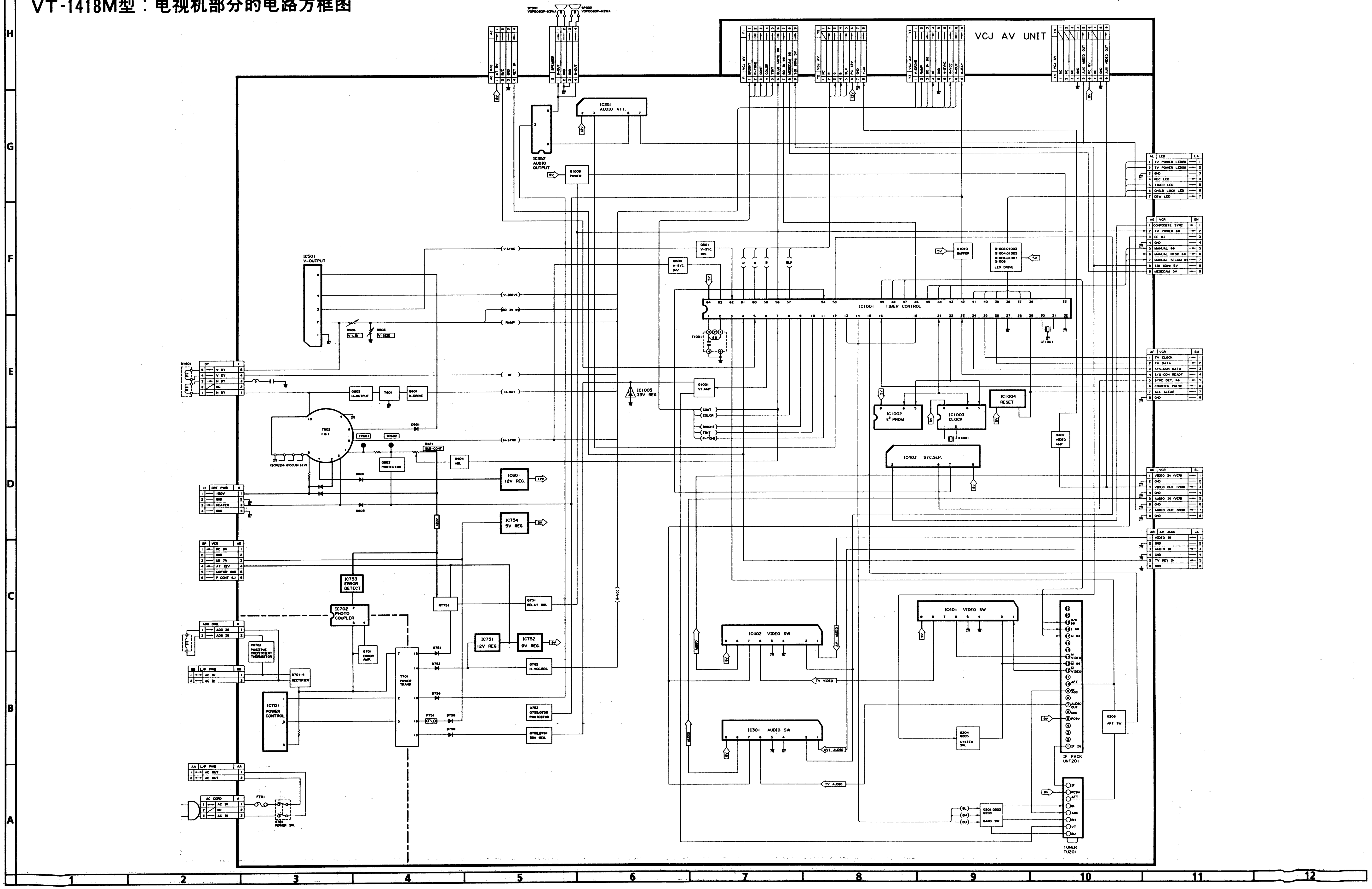
12

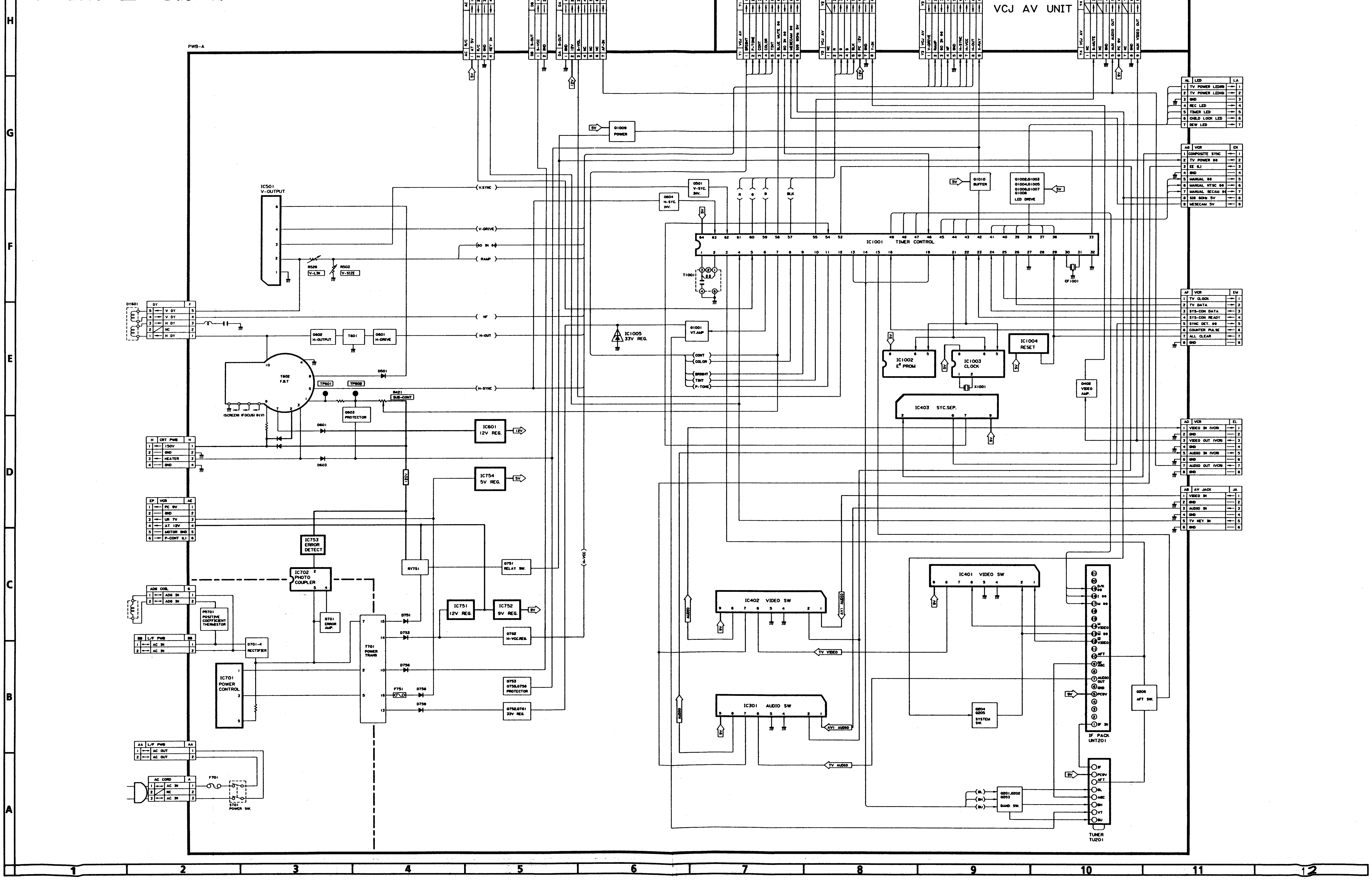
MODEL VT-1418M BLOCK DIAGRAM OF TV SECTION

VT-1418M型：电视机部分的电路方框图


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
SP301 VSP0080P-H3WA
SP302 VSP0080P-H3WA
AC 1 AT 9V 2 R/C 3 GND 4 KEY IN
5 SPEAKER 1 S-OUT 2 GND 3 GND 4 S-OUT
VCJ AV UNIT
Y1 VCJ AV 1 BRIGHT 2 P-TONE 3 CONT 4 COLOR 5 TINT 6 BLUE MUTE 7 60 IN 8 MESECAM 9 SIG 60Hz 5V
Y2 VCJ AV 1 NC 2 R 3 G 4 B 5 BLK 6 PC 12V 7 GND 8 Y-IN
Y3 VCJ AV 1 V-DRIVE 2 RAMP 3 60 IN 4 NF 5 GND 6 H-SYNC 7 H-VCC 8 H-OUT 9 X-RAY
Y4 VCJ AV 1 NC 2 NC 3 NC 4 GND 5 AUX AUDIO OUT 6 PC 9V 7 NC 8 GND 9 AUX VIDEO OUT
IC351 AUDIO ATT.
IC352 AUDIO OUTPUT
Q1009 POWER
IC501 V-OUTPUT
R526 V-LIN
R503 V-SIZE
V.SYNC
V-DRIVE
60 IN
RAMP
NF
H-OUT
H-SYNC
H-VCC
DY601
DY F 5 V DY 4 V DY 3 H DY 2 NC 1 H DY
Q602 H-OUTPUT
T601
Q601 H-DRIVE
T602 F.B.T
D501
TP601
TP602
R421 SUB-CONT
Q404 ABL
Q603 PROTECTOR
(SCREEN) (FOCUS) (H.V)
D601
D603
IC601 12V REG.
IC754 5V REG.
12V
5V
9V
120V
H CRT PWB H 1 150V 2 GND 3 HEATER 4 GND
EP VCR AE 1 PC 9V 2 GND 3 UR 7V 4 AT 12V 5 MOTOR GND 6 P-CONT (L)
IC753 ERROR DETECT
IC702 PHOTO COUPLER
RY751
Q751 RELAY SW.
ADG COIL G 1 ADG IN 2 ADG IN
PR701 POSITIVE COEFFICIENT THERMISTOR
BB L/F PWB BB 1 AC IN 2 AC IN
D701-4 RECTIFIER
Q701 ERROR AMP.
IC701 POWER CONTROL
T701 POWER TRANS
D751
D753
D756
F751
D758
D759
IC751 12V REG.
IC752 9V REG.
Q762 H-VCC.REG.
Q753 Q755,Q756 PROTECTOR
Q752,Q761 33V REG.
AA L/F PWB AA 1 AC OUT 2 AC OUT
AC CORD A 1 AC IN 2 NC 3 AC IN
F701
S701 POWER SW.
Q501 V-SYC. INV.
Q504 H-SYC. INV.
R G B BLK
IC1001 TIMER CONTROL
T1001
CF1001
Q1010 BUFFER
Q1002,Q1003 Q1004,Q1005 Q1006,Q1007 Q1008 LED DRIVE
IC1005 33V REG.
Q1001 VT.AMP
CONT
COLOR
BRIGHT
TINT
P-TONE
IC1002 E² PROM
IC1003 CLOCK
X1001
IC1004 RESET
IC403 SYC.SEP.
Q402 VIDEO AMP.
AL LED LA 1 TV POWER LED(R) 2 TV POWER LED(G) 3 GND 4 REC LED 5 TIMER LED 6 CHILD LOCK LED 7 DEW LED
AG VCR EN 1 COMPOSITE SYNC 2 TV POWER (H) 3 EE (L) 4 GND 5 MANUAL (H) 6 MANUAL NTSC (H) 7 MANUAL SECAM (H) 8 SIG 60Hz 5V 9 MESECAM 5V
AF VCR EM 1 TV CLOCK 2 TV DATA 3 SYS-CON DATA 4 SYS-CON READY 5 SYNC DET. (H) 6 COUNTER PULSE 7 ALL CLEAR 8 GND
AD VCR EL 1 VIDEO IN (VCR) 2 GND 3 VIDEO OUT (VCR) 4 GND 5 AUDIO IN (VCR) 6 GND 7 AUDIO OUT (VCR) 8 GND
AB AV JACK JA 1 VIDEO IN 2 GND 3 AUDIO IN 4 GND 5 TV KEY IN 6 GND
IC402 VIDEO SW
IC301 AUDIO SW
IC401 VIDEO SW
AUDIO
AV1 AUDIO
TV VIDEO
TV AUDIO
Q204 Q205 SYSTEM SW.
Q206 AFT SW.
Q201,Q202 Q203 BAND SW.
BL BH BU
IF PACK UNT201
21 20 19 D/K (H) 18 I (H) 17 M (H) 16 15 14 M VIDEO 13 M (H) 12 VIDEO 11 10 AFT 9 RF AGC 8 7 AUDIO OUT 6 GND 5 PC9V 4 3 2 1 IF IN
TUNER TU201
IF PC9V AFT BL AGC BH VT BU

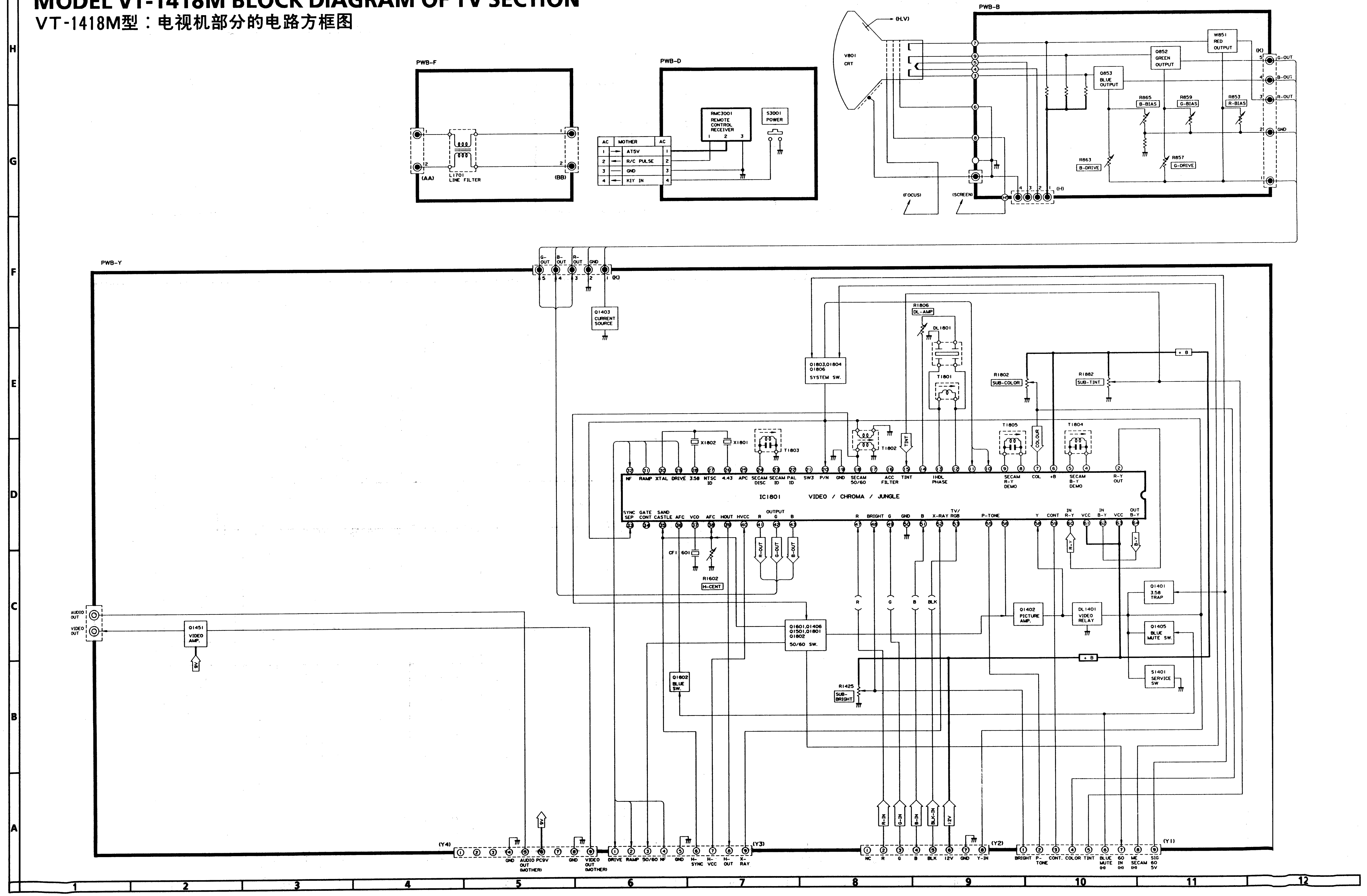
MODEL VT-2118M BLOCK DIAGRAM OF TV SECTION

VT-2118M型：电视机部分的电路方框图


PWB-A
VCJ AV UNIT
IC501 V-OUTPUT
IC1001 TIMER CONTROL
T1001
IC1005 33V REG.
Q1001 VT.AMP
Q1009 POWER
Q1010 BUFFER
LED DRIVE
Q501 V-SYC. INV.
Q604 H-SYC. INV.
IC1002 E2 PROM
IC1003 CLOCK
X1001
IC1004 RESET
CF1001
Q408 VIDEO AMP.
IC403 SYC.SEP.
DY601
Q602 H-OUTPUT
T601
Q601 H-DRIVE
T602 F.B.T
D501
TP601
TP602
R421 SUB-CONT
Q603 PROTECTOR
(SCREEN) (FOCUS) (H.V)
D601
D602
D603
IC601 12V REG.
IC754 5V REG.
IC753 ERROR DETECT
IC702 PHOTO COUPLER
RY751
Q751 RELAY SW.
PR701 POSITIVE COEFFICIENT THERMISTOR
D701-4 RECTIFIER
Q701 ERROR AMP.
IC701 POWER CONTROL
T701 POWER TRANS
D751
D753
D756
F751
D758
D759
IC751 12V REG.
IC752 9V REG.
Q762 H-VCC.REG.
Q753 Q755,Q756 PROTECTOR
Q752,Q761 33V REG.
F701
S701 POWER SW.
IC402 VIDEO SW
IC301 AUDIO SW
IC401 VIDEO SW
TV VIDEO
TV AUDIO
AV1 AUDIO
Q204 Q205 SYSTEM SW.
Q201,Q202 Q203 BAND SW.
Q208 AFT SW.
IF PACK UNT201
TUNER TU201
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

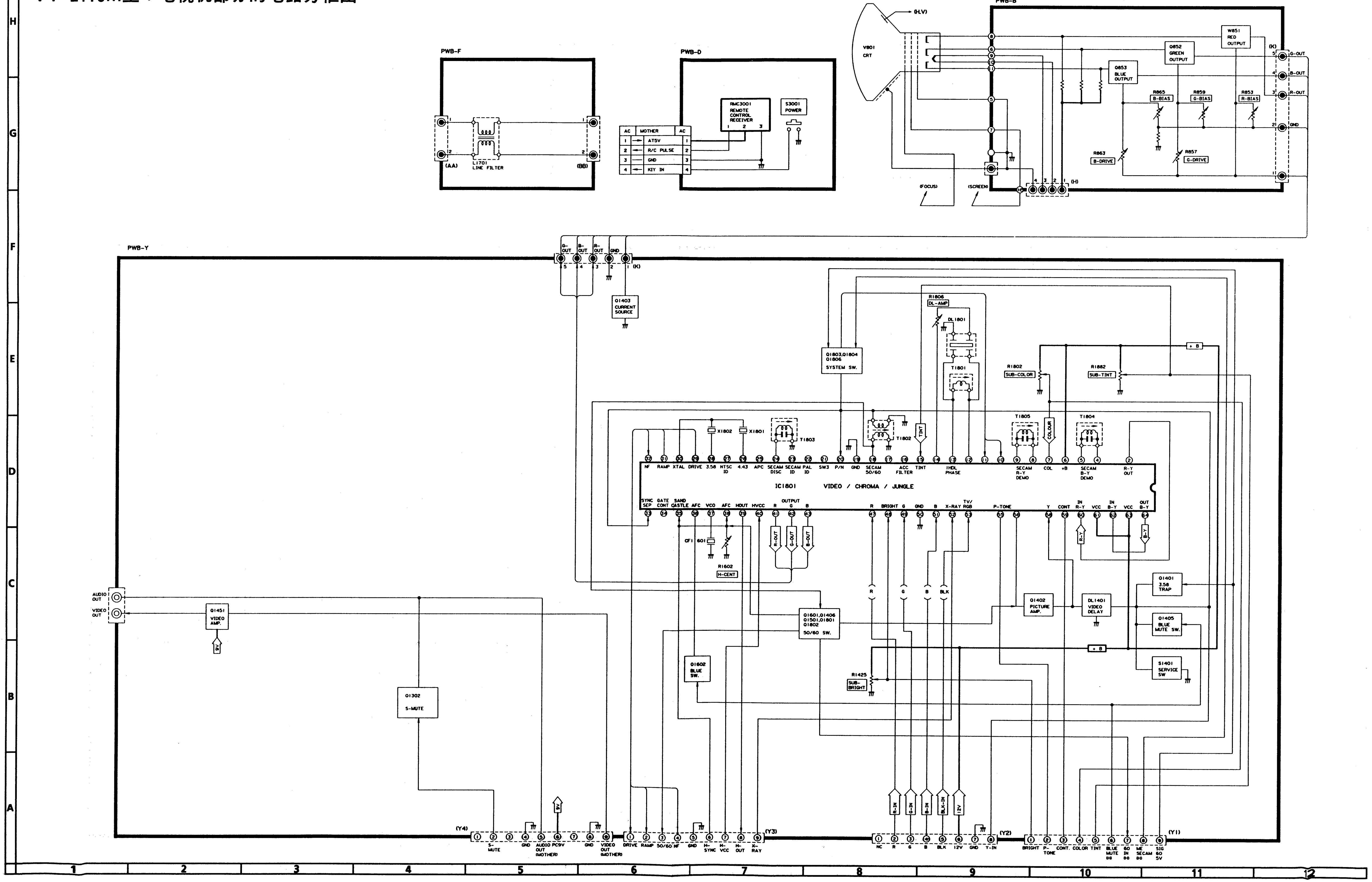
MODEL VT-1418M BLOCK DIAGRAM OF TV SECTION

VT-1418M型：电视机部分的电路方框图


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
PWB-F
(AA)
L1701
LINE FILTER
(BB)
PWB-D
AC
MOTHER
AC
1 AT5V 1
2 R/C PULSE 2
3 GND 3
4 KIY IN 4
RMC3001
REMOTE CONTROL RECEIVER
1 2 3
S3001
POWER
V801
CRT
(H.V)
PWB-B
W851
RED OUTPUT
Q852
GREEN OUTPUT
Q853
BLUE OUTPUT
(K)
G-OUT
B-OUT
R-OUT
GND
R865
B-BIAS
R859
G-BIAS
R853
R-BIAS
R863
B-DRIVE
R857
G-DRIVE
(FOCUS)
(SCREEN)
(H)
PWB-Y
G-OUT
B-OUT
R-OUT
GND
(K)
Q1403
CURRENT SOURCE
Q1803,Q1804
Q1806
SYSTEM SW.
R1806
DL-AMP
DL1801
T1801
R1802
SUB-COLOR
R1882
SUB-TINT
+B
X1802
X1801
T1803
T1802
TINT
T1805
COLOUR
T1804
NF
RAMP
XTAL
DRIVE
3.58
NTSC ID
4.43
APC
SECAM DISC
SECAM ID
PAL ID
SW3
P/N
GND
SECAM 50/60
ACC FILTER
TINT
IHDL PHASE
SECAM R-Y DEMO
COL
+B
SECAM B-Y DEMO
R-Y OUT
IC1801
VIDEO / CHROMA / JUNGLE
SYNC SEP
GATE CONT
SAND CASTLE
AFC
VCO
AFC
HOUT
HVCC
OUTPUT
R
G
B
R
BRIGHT
G
GND
B
X-RAY
TV/ RGB
P-TONE
Y
CONT
IN R-Y
VCC
IN B-Y
VCC
OUT B-Y
CF1601
R1602
H-CENT
R-OUT
G-OUT
B-OUT
R-Y
B-Y
AUDIO OUT
VIDEO OUT
Q1451
VIDEO AMP.
9V
Q1601,Q1406
Q1501,Q1801
Q1802
50/60 SW.
Q1802
BLUE SW.
R
G
B
BLK
R1425
SUB-BRIGHT
Q1402
PICTURE AMP.
DL1401
VIDEO RELAY
Q1401
3.58 TRAP
Q1405
BLUE MUTE SW.
+B
S1401
SERVICE SW
R-IN
G-IN
B-IN
BLK-IN
12V
(Y4)
GND
AUDIO OUT (MOTHER)
PC9V
GND
VIDEO OUT (MOTHER)
DRIVE
RAMP
50/60
NF
GND
H-SYNC
H-VCC
H-OUT
X-RAY
(Y3)
NC
R
G
B
BLK
12V
GND
Y-IN
(Y2)
BRIGHT
P-TONE
CONT.
COLOR
TINT
BLUE MUTE (H)
60 IN (H)
ME SECAM (H)
SIG 60 5V
(Y1)

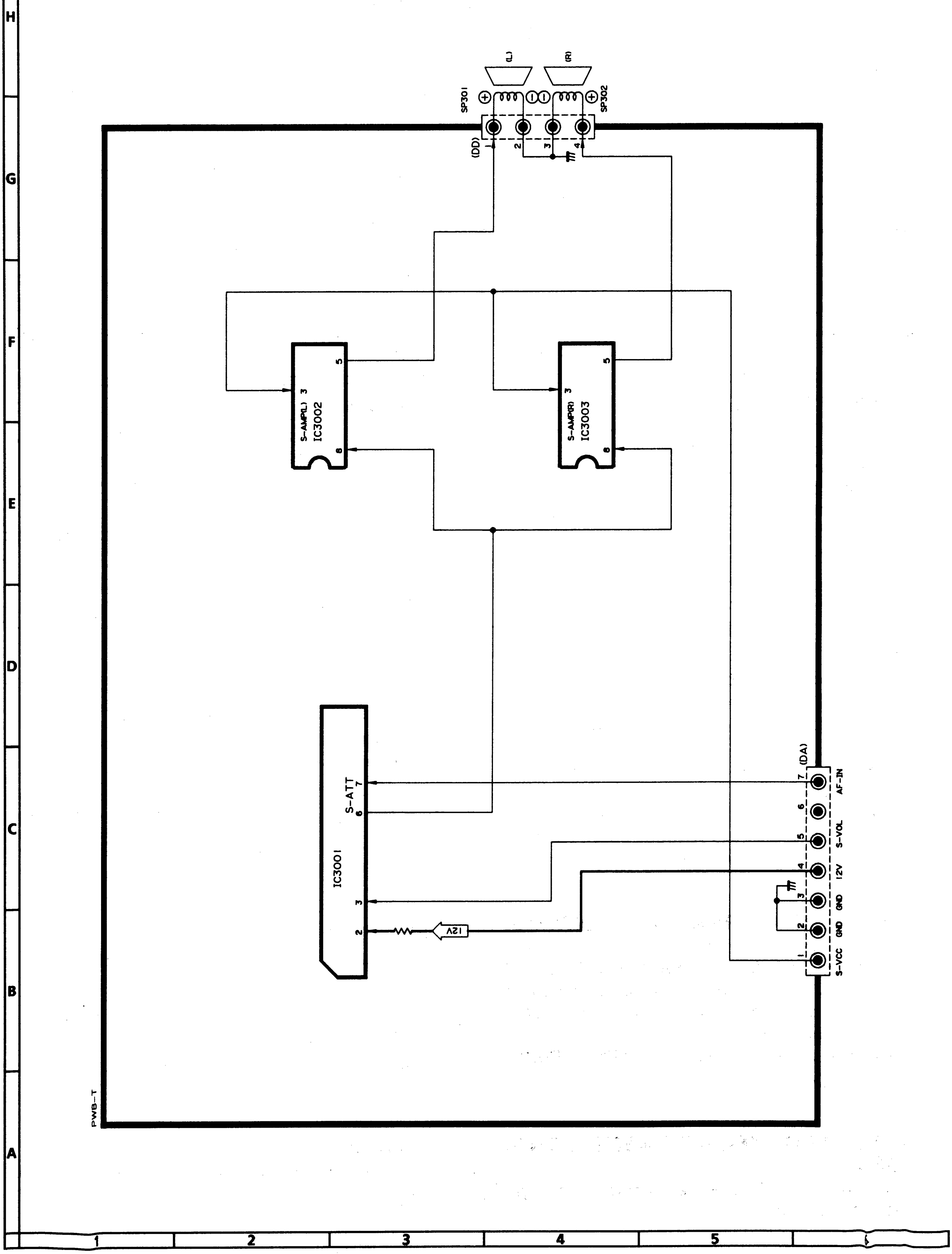
MODEL VT-2118M BLOCK DIAGRAM OF TV SECTION

VT-2118M型：电视机部分的电路方框图


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
PWB-F
1
2
(AA)
L1701
LINE FILTER
1
2
(BB)
PWB-D
AC
MOTHER
AC
1
AT5V
1
2
R/C PULSE
2
3
GND
3
4
KIY IN
4
RMC3001
REMOTE
CONTROL
RECEIVER
1 2 3
S3001
POWER
(H.V)
V801
CRT
PWB-B
8
6
9
10
11
5
7
(FOCUS)
(SCREEN)
4 3 2 1 (H)
W851
RED
OUTPUT
Q852
GREEN
OUTPUT
Q853
BLUE
OUTPUT
R865
B-BIAS
R859
G-BIAS
R853
R-BIAS
R863
B-DRIVE
R857
G-DRIVE
(K)
5 G-OUT
4 B-OUT
3 R-OUT
2 GND
1
PWB-Y
G-OUT
B-OUT
R-OUT
GND
5 4 3 2 1 (K)
Q1403
CURRENT
SOURCE
Q1803,Q1804
Q1806
SYSTEM SW.
R1806
DL-AMP
DL1801
T1801
R1802
SUB-COLOR
R1882
SUB-TINT
+ B
X1802
X1801
T1803
T1802
TINT
T1805
COLOUR
T1804
32 NF
31 RAMP
30 XTAL
29 DRIVE
28 3.58
27 NTSC ID
26 4.43
25 APC
24 SECAM DISC
23 SECAM ID
22 PAL ID
21 SW3
20 P/N
19 GND
18 SECAM 50/60
17
16 ACC FILTER
15 TINT
14
13 IHDL PHASE
12
11
10
9 SECAM R-Y DEMO
8
7 COL
6 +B
5 SECAM B-Y DEMO
4
2 R-Y OUT
IC1801
VIDEO / CHROMA / JUNGLE
33 SYNC SEP
34 GATE CONT
35 SAND CASTLE
36 AFC
37 VCO
38 AFC
39 HOUT
40 HVCC
OUTPUT
41 R
42 G
43 B
47 R
48 BRIGHT
49 G
50 GND
51 B
52 X-RAY
53 TV/RGB
55 P-TONE
56
58 Y
59 CONT
60 IN R-Y
61 VCC
62 IN B-Y
63 VCC
64 OUT B-Y
CF1 601
R1602
H-CENT
R-OUT
G-OUT
B-OUT
R-Y
B-Y
R
G
B
BLK
AUDIO OUT
VIDEO OUT
Q1451
VIDEO
AMP.
9V
Q1601,Q1406
Q1501,Q1801
Q1802
50/60 SW.
Q1402
PICTURE
AMP.
DL1401
VIDEO
DELAY
Q1401
3.58
TRAP
Q1405
BLUE
MUTE SW.
+ B
S1401
SERVICE
SW
Q1602
BLUE
SW.
R1425
SUB-
BRIGHT
Q1302
S-MUTE
9V
R-IN
G-IN
B-IN
BLK-IN
12V
(Y4)
1
2 S-MUTE
3
4 GND
5 AUDIO OUT (MOTHER)
6 PC9V
7
8 GND
9 VIDEO OUT (MOTHER)
1 DRIVE
2 RAMP
3 50/60
4 NF
5 GND
6 H-SYNC
7 H-VCC
8 H-OUT
9 X-RAY
(Y3)
1 NC
2 R
3 G
4 B
5 BLK
6 12V
7 GND
8 Y-IN
(Y2)
1 BRIGHT
2 P-TONE
3 CONT.
4 COLOR
5 TINT
6 BLUE MUTE (H)
7 60 IN (H)
8 ME SECAM (H)
9 SIG 60 5V
(Y1)

MODEL VT-2118M BLOCK DIAGRAM OF TV SECTION

VT-2118M型：电视机部分的电路方框图


H
G
F
E
D
C
B
A
1
2
3
4
5
6
(L)
(R)
SP301
SP302
(DD)
1
2
3
4
S-AMP(L) 3
IC3002
5
8
S-AMP(R) 3
IC3003
5
8
IC3001
S-ATT
7
6
3
2
12V
(DA)
7 AF-IN
6
5 S-VOL
4 12V
3 GND
2 GND
1 S-VCC
PWB-T

DESCRIPTION OF TV SECTION SCHEMATIC DIAGRAM

电路原理图的说明

SAFETY NOTE:

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACEING PARTS.

2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

IMPORTANT SAFETY NOTICE:

BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET.
PARTS MARKED WITH "⚠" (▒▒▒) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (‒ ‒ ‒ ‒ ‒ ‒ ‒) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE.
WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

CAUTION:

This circuit diagram is original one, therefore there may be a slight difference from yours.

NOTES:

1. The unit of resistance "ohm" is omitted.
(K = 1000 ohms, M = 1Meg ohm).
2. All resistors are 1/8 watt, unless otherwise noted.
3. The unit of capacitance "F" is omitted.
$(\mu = \mu F,\ P = \mu\mu F)$.
4. The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.

VOLTAGE MEASUREMENT CONDITIONS:

1. DC voltages are measured between points indicated and chassis ground by VTVM, with AC 110~240V, 50/60Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.
2. Voltages are measured with 10000μV B&W or colour signal.

WAVEFORM MEASUREMENT CONDITIONS:

10000μV, 87.5% modulated colour bar signal is fed into tuner.

安全注意事项：

1.更换电路元件时，必须先拔出电源插头，切断电源。
2.底盘电路处工作状态时，应注意电路中半导体元件散热片高电位可能导致的电击危险。

安全使用注意要点：

为保证本机的安全以及持久、正常的使用，电路元件必须使用规定的纯正正牌元件。
标有“⚠”(▒▒▒) 的元件为对保证本机长久的安全使用起重要作用的元件。更换这些元件时，必须使用规定的纯正正牌元件，以保证本机的使用安全以及使用寿命。

维修注意事项：

电路中由粗断续线(‒ ‒ ‒ ‒ ‒ ‒ ‒)所围部分为与交流电源直接相接线路。对这些部分的线路进行维修时，应于本机与交流电源之间用隔离变压器相接，以防止不意的电击之危险。

注意：

这里的电路原理图均为最初设计原图，与您的机器的电路原理图可能有不同之处。

注：

1.电阻单位为Ω"(欧姆)，图中省略。
(K=1000Ω，M=1000000Ω)
2.除另加标记者，所有电阻之功率均为1/8W。
3.电容单位为“F”(法拉)，图中省略。
$(\mu=1\times10^{-6}F,\ P=1\times10^{-12}F)$
4.括号中的数值为再现工作状态时之数值，括号外的数值为记录工作状态时之数值。

电压测定条件：

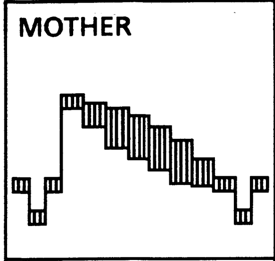
1.除另加注明者，直流电压指于本机加110-240V，50/60Hz交流电源，设所有控制调节为标准设定，用电子管电压表(VTVM)于测点与底盘接地端之间所测电压值。
2.交流电压由10,000μV的黑白或彩色信号所测。

波形测定条件：

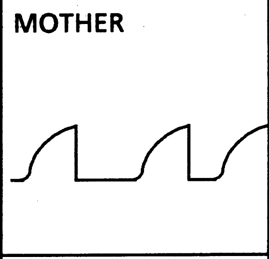
向调谐器输入10,000μV，87.5%的调制彩条信号加以测定。

WAVEFORMS

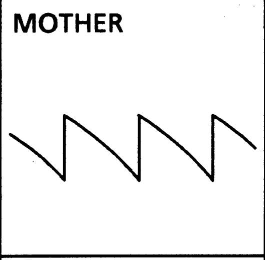
波形图



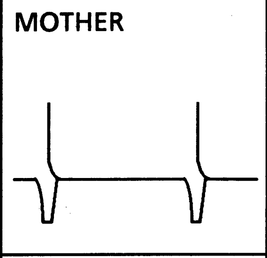
① 2.0 Vp-p (H)



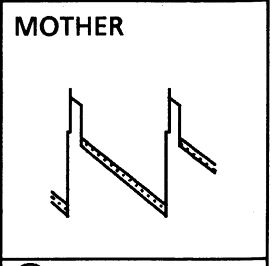
② 8.8 Vp-p (H) VT-1418M
8.5 Vp-p (H) VT-2118M



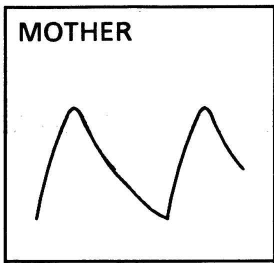
③ 2.0 Vp-p (V)



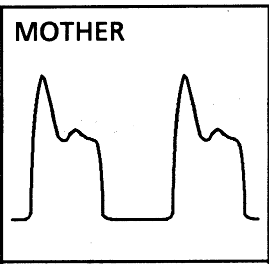
④ 2.2 Vp-p (V) VT-1418M
1.5 Vp-p (V) VT-2118M



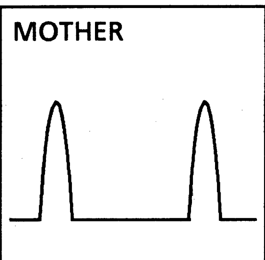
⑤ 55 Vp-p (V)



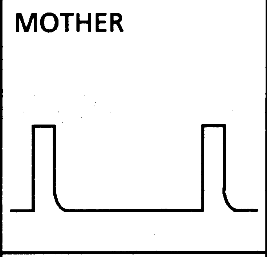
⑥ 1.2 Vp-p (H)



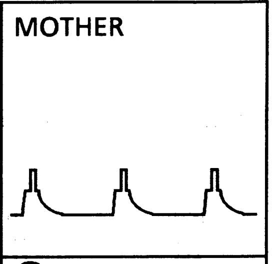
⑦ 165 Vp-p (H) VT-1418M
96 Vp-p (H) VT-2118M



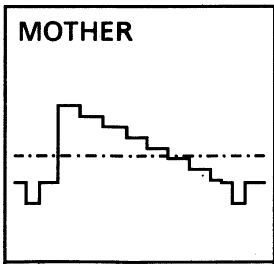
⑧ 950 Vp-p (H)



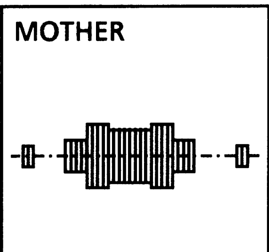
⑨ 13 Vp-p (H)



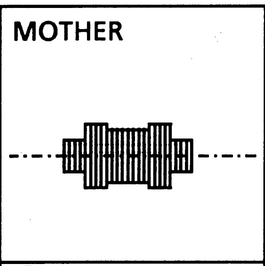
⑩ 10 Vp-p (H)



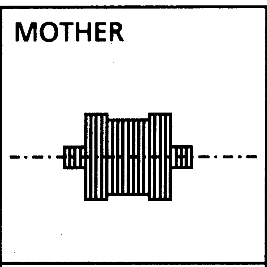
⑪ 0.47 Vp-p (H)



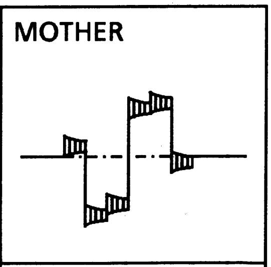
⑫ 0.56 Vp-p (H)



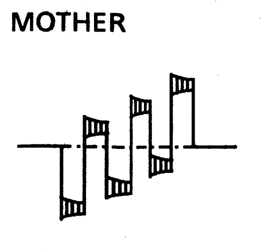
⑬ 2.6 Vp-p (H)



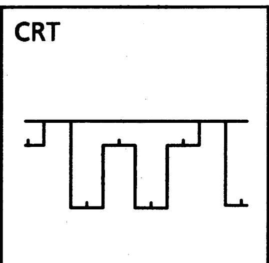
⑭ 0.42 Vp-p (H)



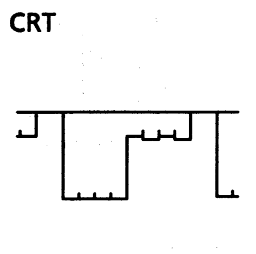
⑮ 0.92 Vp-p (H)



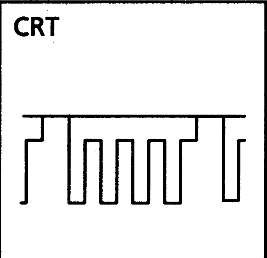
⑯ 0.67 Vp-p (H)



⑰ 78 Vp-p (H) VT-1418M
94 Vp-p (H) VT-2118M



⑱ 78 Vp-p (H) VT-1418M
85 Vp-p (H) VT-2118M

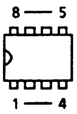


⑲ 78 Vp-p (H) VT-1418M
88 Vp-p (H) VT-2118M

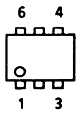
SOLID STATE DEVICE BASE DIAGRAM

固体器件基座图

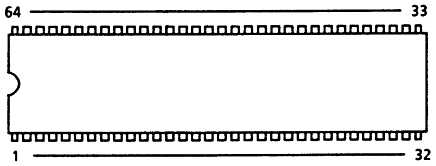
TOP VIEW/ 俯视图



TDA7233

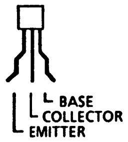


FX0012

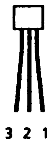


iX2443CE

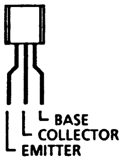
SIDE VIEW/ 侧视图


BASE
COLLECTOR
EMITTER

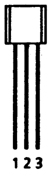
2SK304CD



DTC144ES


BASE
COLLECTOR
EMITTER

2SC1815
2SA1015



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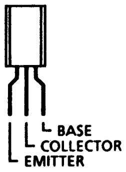
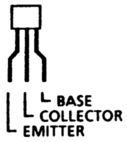
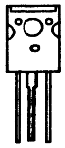

BASE
COLLECTOR
EMITTER

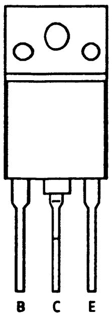
2SC2229


BASE
COLLECTOR
EMITTER

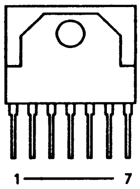
2SC3399



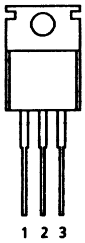
2SC3620



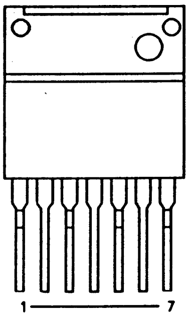
2SD1554



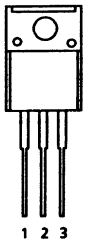
iX0640CE



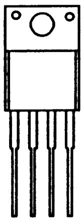
iX0452CE



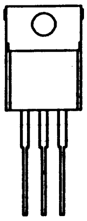
STRM6523



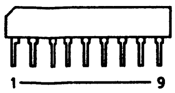
TA7812S
TA7805S



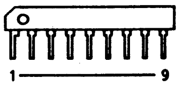
PQ30RV11



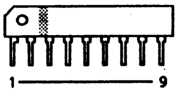
SE120N



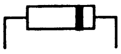
TA7348P



iX0241CE
iX0257CE



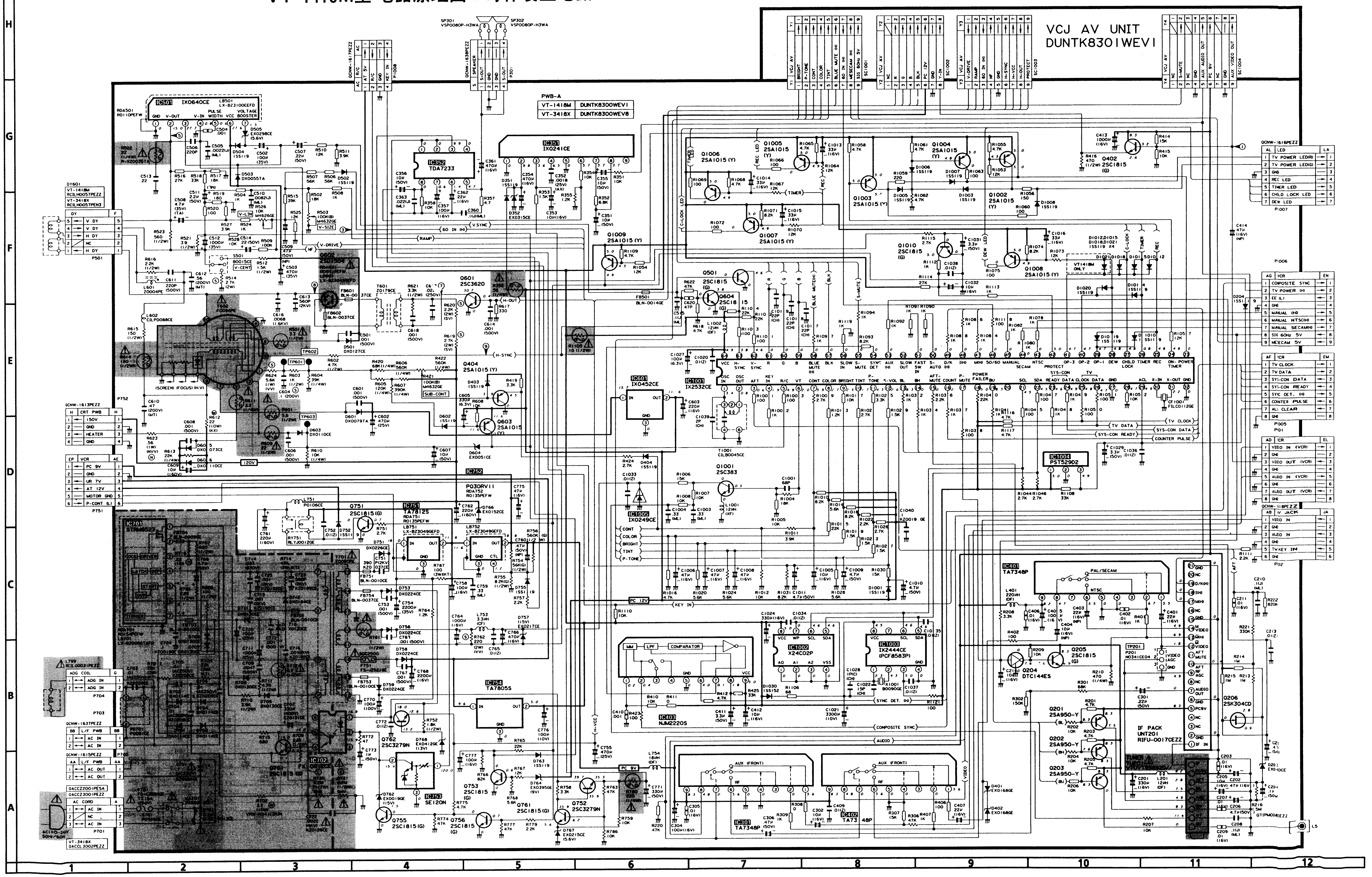
NJM2220S



iX0249CE

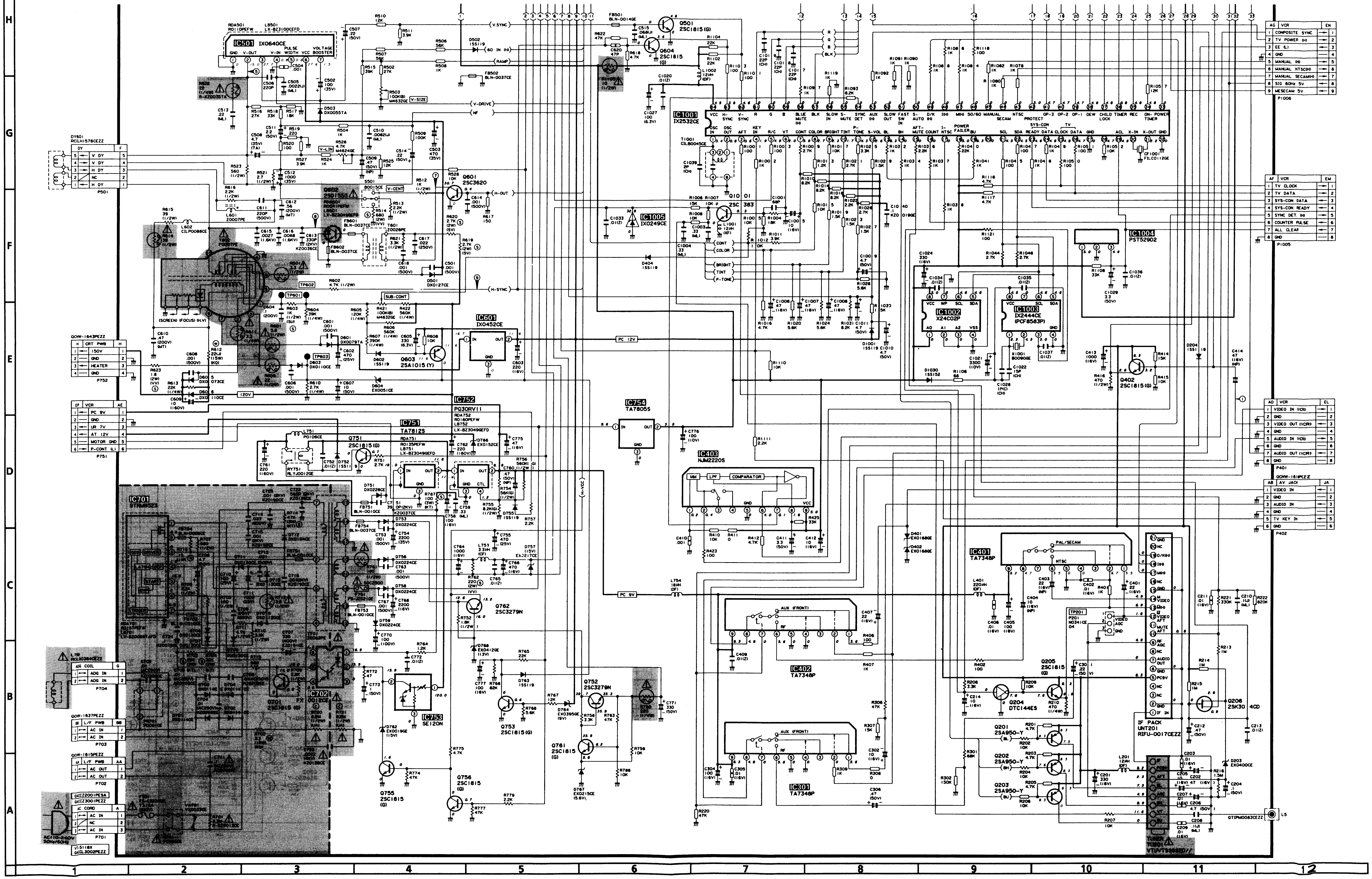
MODEL VT-1418M SCHEMATIC DIAGRAM: Mother Unit

VT-1418M型 电路原理图：母体装置电路


VCJ AV UNIT
DUNTK8301WEV1
PWB-A
VT-1418M DUNTK8300WEV1
VT-3418X DUNTK8300WEV8
IC501 IX0640CE
IC351 IX0241CE
IC352 TDA7233
IC601 IX0452CE
IC1001 IX2532CE
IC1004 PST52902
IC1005 IX0249CE
IC701 STR-M6523
IC702
IC751 TA78125
IC752 PQ30RV11
IC753 SE120N
IC754 TA7805S
IC401 TA7348P
IC1002 X24C02P
IC1003 IX2444CE (PCF8583P)
IC403 NJM2205
IC201 TA7348P
IC402 TA7348P
IF PACK UNT201 RIFU-0017CEZZ
TUNER
SP301
SP302
P501
P701
P704
P751
P752
P1005
P1006
P1007
P01
P02
AC 110-240V 50Hz/60Hz
1
2
3
4
5
6
7
8
9
10
11
12
H
G
F
E
D
C
B
A

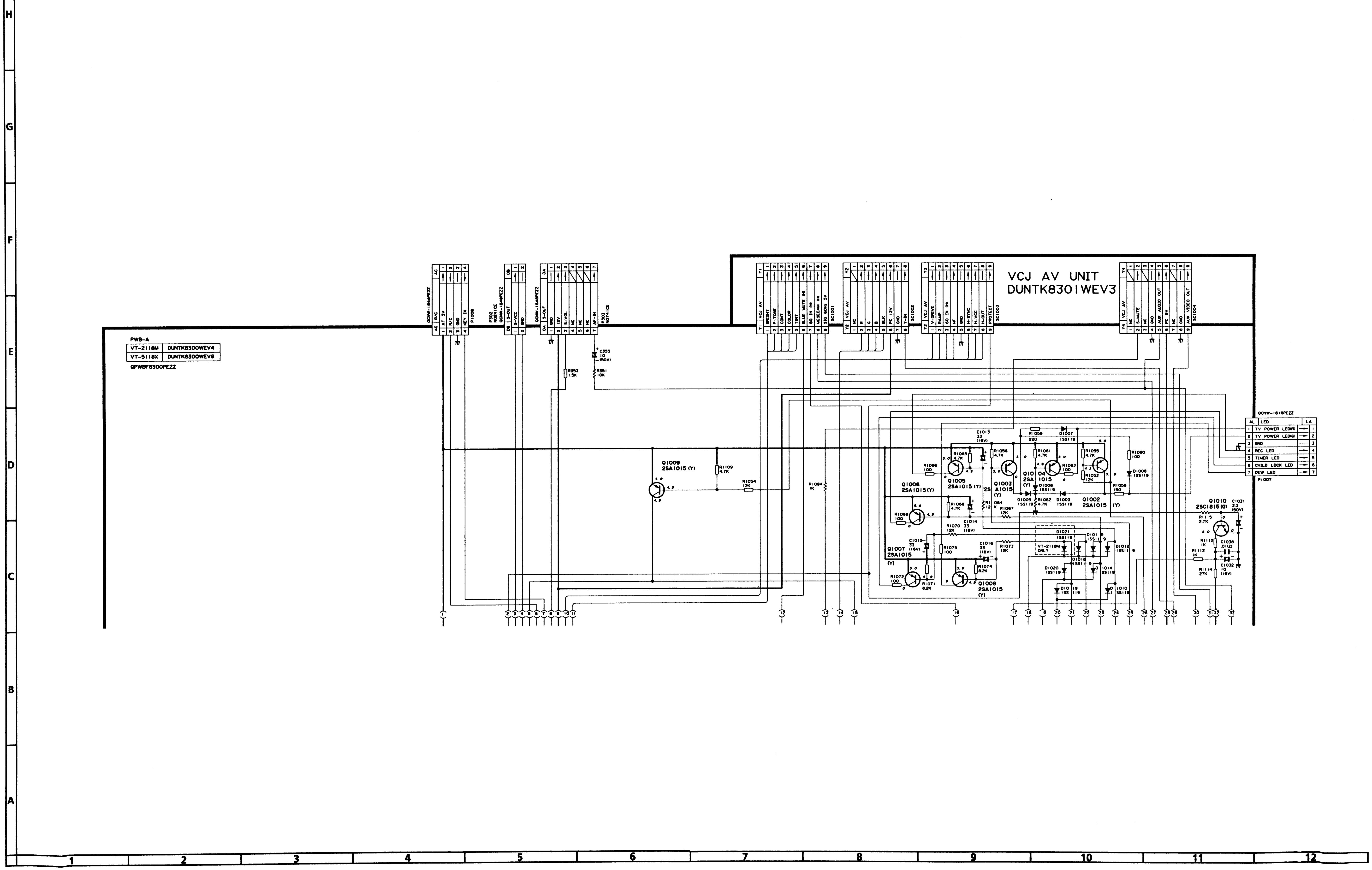
MODEL VT-2118M SCHEMATIC DIAGRAM: Mother Unit-1

VT-2118M型 电路原理图：母体装置电路-1


IC501 IX0640CE
IC1001 IX2532CE
IC1005 IX0249CE
IC1004 PST529D2
IC1002 X24C02P
IC1003 IX2444CE (PCF8583P)
IC601 IX0452CE
IC752 PQ30RV11
IC751 TA7812S
IC754 TA7805S
IC403 NJM2220S
IC401 TA7348P
IC402 TA7348P
IC301 TA7348P
IC701
IC702
IC753 SE120N
IF PACK UNT201 RIFU-0017CEZZ
TUNER
Q501 2SC1815(G)
Q604 2SC1815
Q601 2SC3620
Q603 2SA1015(Y)
Q1001 2SC383
Q402 2SC1815(G)
Q751 2SC1815(G)
Q762 2SC3279N
Q752 2SC3279N
Q753 2SC1815(G)
Q761 2SC1815(G)
Q755 2SC1815(G)
Q756 2SC1815(G)
Q205 2SC1815(G)
Q204 DTC144ES
Q206 2SK30
Q201 2SA950-Y
Q202 2SA950-Y
Q203 2SA950-Y
AG VCR EN
1 COMPOSITE SYNC
2 TV POWER
3 EE (L)
4 GND
5 MANUAL
6 MANUAL NTSC
7 MANUAL SECAM
8 SIG 60Hz 5V
9 MESECAM 5V
P1006
AF VCR EM
1 TV CLOCK
2 TV DATA
3 SYS-CON DATA
4 SYS-CON READY
5 SYNC DET
6 COUNTER PULSE
7 ALL CLEAR
8 GND
P1005
AD VCR EL
1 VIDEO IN
2 GND
3 VIDEO OUT
4 GND
5 AUDIO IN
6 GND
7 AUDIO OUT
8 GND
P401
AB AV JACK JA
1 VIDEO IN
2 GND
3 AUDIO IN
4 GND
5 TV KEY IN
6 GND
P402
DY601
P501
P752
P751
P704
P703
P702
P701
AC110-240V 50Hz/60Hz
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

MODEL VT-2118M SCHEMATIC DIAGRAM: Mother Unit-2

VT-2118M型 电路原理图：母体装置电路-2


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
PWB-A
VT-2118M DUNTK8300WEV4
VT-5118X DUNTK8300WEV9
QPWBF8300PEZZ
QCNW-1644PEZZ
AC
AT 5V
R/C
GND
KEY IN
P1008
P302
NO241CE
QCNW-1648PEZZ
DB
S-OUT
S-VCC
GND
QCNW-1648PEZZ
DA
S-OUT
GND
12V
S-VOL
NC
NC
NC
AF-IN
P303
NO741CE
C355
10
(50V)
R353
1.5K
R351
10K
VCJ AV UNIT
DUNTK8301WEV3
Y1
VCJ AV
BRIGHT
P-TONE
CONT
COLOR
TINT
BLUE MUTE (H)
60 IN (H)
MESECAM (H)
SIG 60Hz 5V
SC1001
Y2
VCJ AV
NC
R
G
B
BLK
PC 12V
GND
Y-IN
SC1002
Y3
VCJ AV
V-DRIVE
RAMP
60 IN (H)
NF
GND
H-SYNC
H-VCC
H-OUT
PROTECT
SC1003
Y4
VCJ AV
NC
S-MUTE
NC
GND
AUX AUDIO OUT
PC 9V
NC
GND
AUX VIDEO OUT
SC1004
QCNW-1616PEZZ
AL
LED
LA
1 TV POWER LED(R) 1
2 TV POWER LED(G) 2
3 GND 3
4 REC LED 4
5 TIMER LED 5
6 CHILD LOCK LED 6
7 DEW LED 7
P1007
Q1009
2SA1015 (Y)
R1109
4.7K
R1054
12K
R1094
1K
C1013
33
(16V)
R1059
220
D1007
1SS119
R1065
4.7K
R1066
100
R1058
4.7K
R1061
4.7K
R1063
100
R1055
4.7K
R1053
12K
R1080
100
D1008
1SS119
R1056
150
Q1006
2SA1015(Y)
Q1005
2SA1015 (Y)
Q1003
2SA1015
(Y)
Q1004
2SA1015
(Y)
D1006
1SS119
D1005
1SS119
R1062
4.7K
D1003
1SS119
Q1002
2SA1015 (Y)
R1067
12K
R1068
4.7K
R1069
100
R1070
12K
C1014
33
(16V)
Q1010
2SC1815(G)
C1031
3.3
(50V)
R1115
2.7K
R1112
1K
C1038
.01(Z)
R1113
1K
C1032
10
(16V)
R1114
27K
Q1007
2SA1015
(Y)
C1015
33
(16V)
R1075
100
C1016
33
(16V)
R1073
12K
D1021
1SS119
VT-2118M ONLY
D1015
1SS119
D1012
1SS119
D1016
1SS119
D1014
1SS119
D1020
1SS119
D1019
1SS119
D1010
1SS119
R1074
8.2K
R1072
100
R1071
8.2K
Q1008
2SA1015
(Y)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
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27
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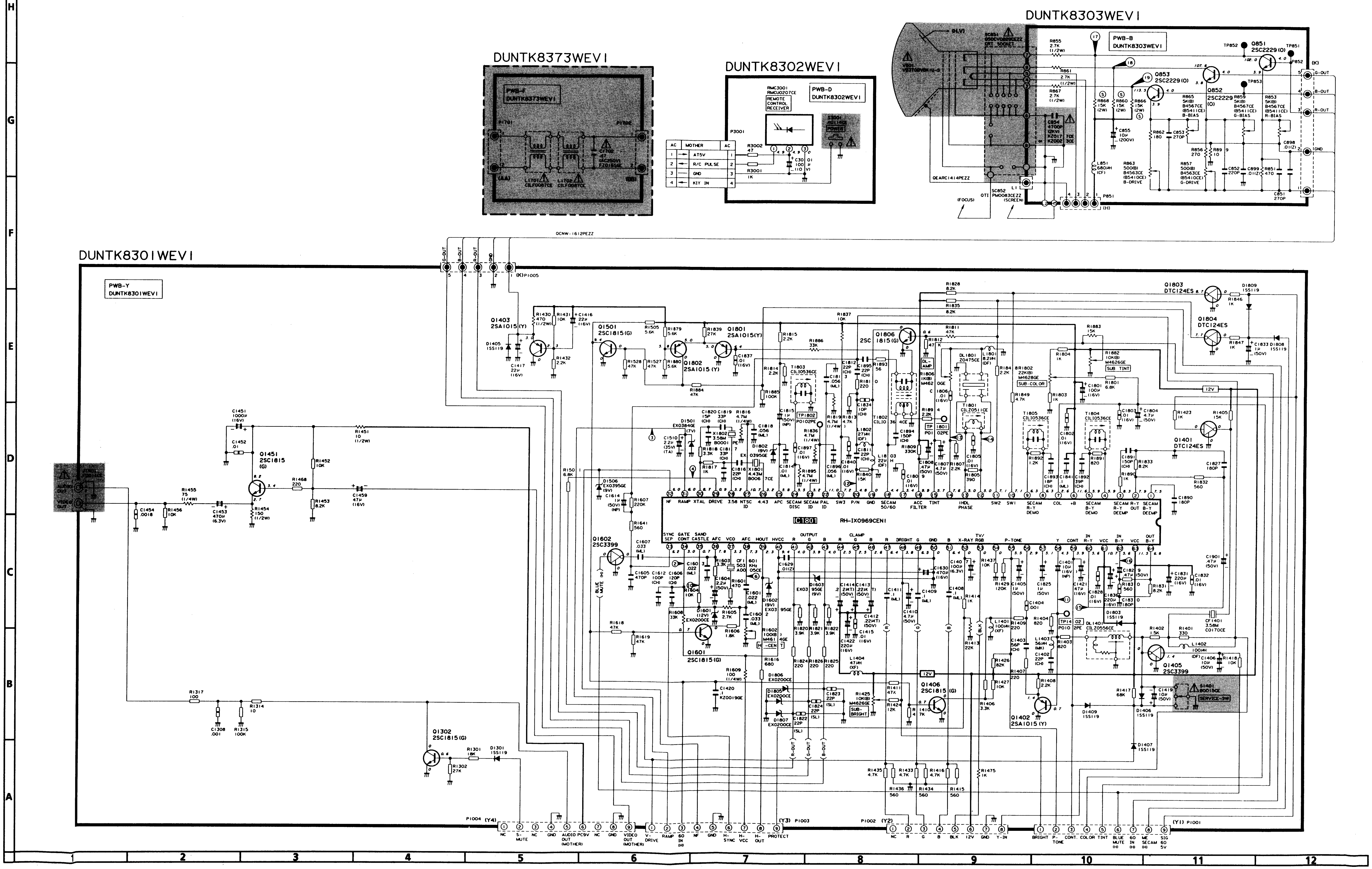
30
31
32
33

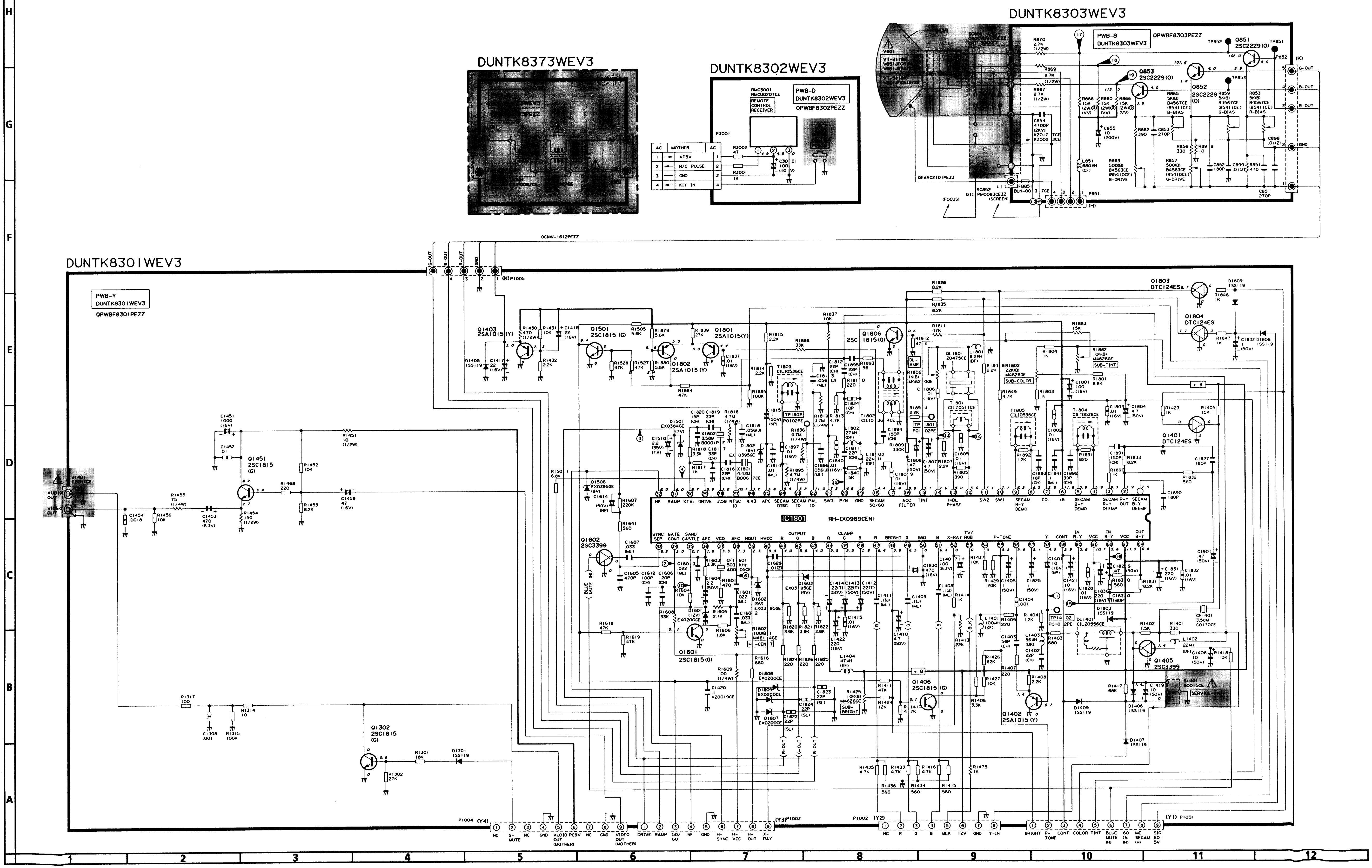
MODEL VT-1418M SCHEMATIC DIAGRAM: CRT Socket, Power SW, R/C, Line Filter, VCJ, A/V Unit

VT-1418M型 电路原理图：CRT管座、电源开关、遥控器、线性滤波器、VCJ及声象电路


DUNTK8373WEV1
PWB-F DUNTK8373WEV1
DUNTK8302WEV1
PWB-D DUNTK8302WEV1
REMOTE CONTROL RECEIVER
DUNTK8303WEV1
PWB-B DUNTK8303WEV1
CRT SOCKET
Q851 2SC2229(O)
Q852 2SC2229(O)
Q853 2SC2229(O)
G-OUT
B-OUT
R-OUT
GND
(FOCUS)
(SCREEN)
DUNTK8301WEV1
PWB-Y DUNTK8301WEV1
Q1403 2SA1015(Y)
Q1501 2SC1815(G)
Q1801 2SA1015(Y)
Q1802 2SA1015(Y)
Q1806 2SC1815(G)
Q1451 2SC1815(G)
Q1602 2SC3399
Q1601 2SC1815(G)
Q1302 2SC1815(G)
Q1406 2SC1815(G)
Q1402 2SA1015(Y)
Q1405 2SC3399
Q1401 DTC124ES
Q1803 DTC124ES
Q1804 DTC124ES
IC1801 RH-IX0969CEN1
SUB-COLOR
SUB-TINT
SUB-BRIGHT
SERVICE-SW
AUDIO OUT
VIDEO OUT
12V
P1004 (Y4)
P1003 (Y3)
P1002 (Y2)
P1001 (Y1)
P1005 (K)
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

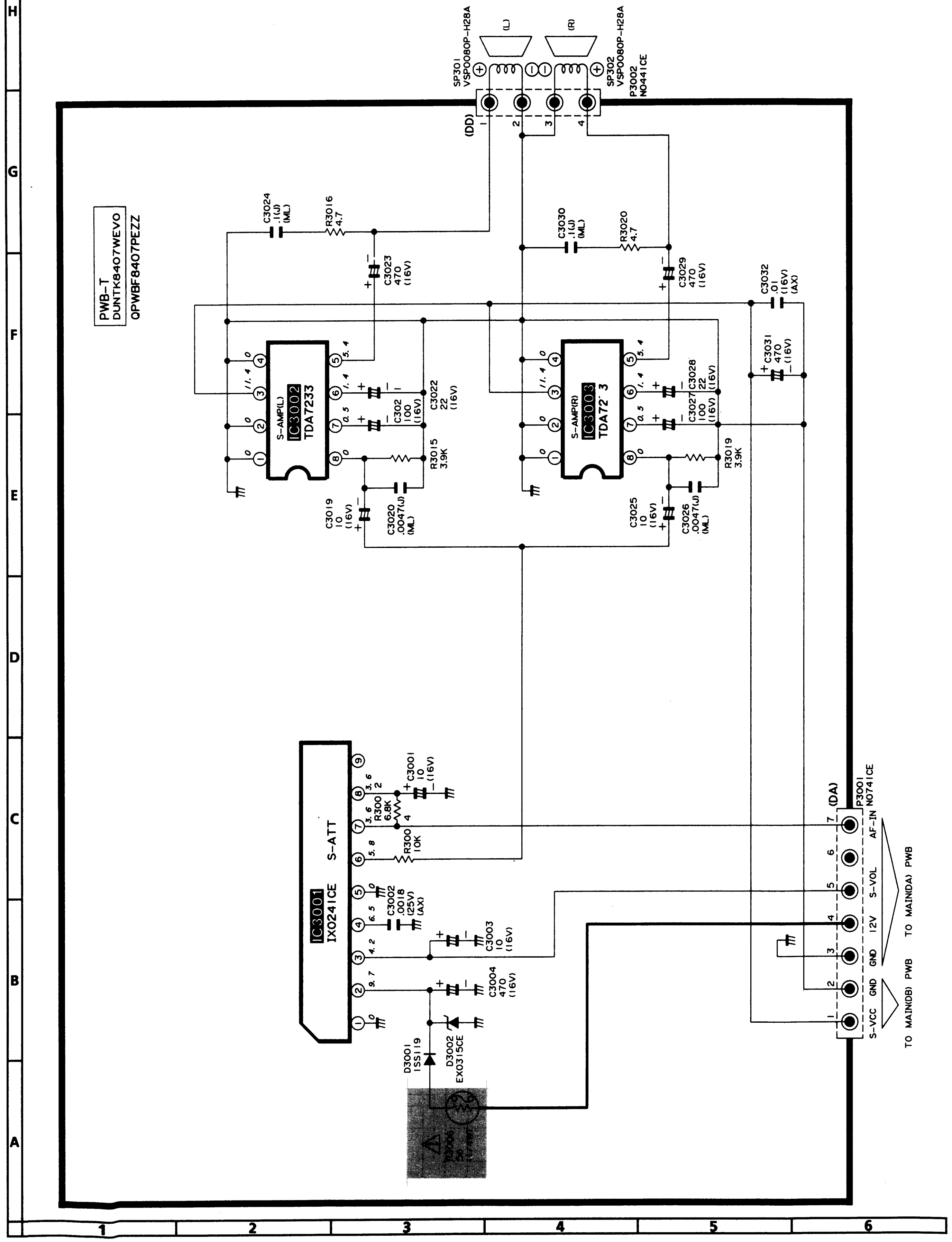
MODEL VT-2118M SCHEMATIC DIAGRAM: CRT Socket, Power SW, R/C, Line Filter, VCJ, A/V Unit

VT-2118M型 电路原理图：CRT管座、电源开关、遥控器、线性滤波器、VCJ、声象电路


DUNTK8303WEV3
PWB-B
DUNTK8303WEV3
QPWBF8303PEZZ
Q851 2SC2229(O)
Q852 2SC2229(O)
Q853 2SC2229(O)
G-OUT
B-OUT
R-OUT
GND
(FOCUS)
(SCREEN)
P851
DUNTK8373WEV3
DUNTK8302WEV3
PWB-D
DUNTK8302WEV3
QPWBF8302PEZZ
RMC3001 RMCU0207CE REMOTE CONTROL RECEIVER
S3001 POWER
MOTHER
AT5V
R/C PULSE
GND
KEY IN
P3001
QCNW-1612PEZZ
DUNTK8301WEV3
PWB-Y
DUNTK8301WEV3
QPWBF8301PEZZ
P1005
J1401
AUDIO OUT
VIDEO OUT
Q1451 2SC1815 (G)
Q1403 2SA1015 (Y)
Q1501 2SC1815 (G)
Q1801 2SA1015(Y)
Q1802 2SA1015 (Y)
Q1806 2SC1815(G)
Q1803 DTC124ES
Q1804 DTC124ES
Q1401 DTC124ES
Q1602 2SC3399
Q1601 2SC1815(G)
Q1406 2SC1815 (G)
Q1402 2SA1015 (Y)
Q1405 2SC3399
Q1302 2SC1815 (G)
IC1801
RH-IX0969CEN1
X1802 3.58M
X1801 4.43M
T1803
T1801
T1805
T1804
S1401 SERVICE-SW
SUB-TINT
SUB-COLOR
SUB-BRIGHT
H-CEN
BLUE MUTE
P1004 (Y4)
P1003 (Y3)
P1002 (Y2)
P1001 (Y1)
NC
S-MUTE
NC
GND
AUDIO OUT
PC9V
NC
GND
VIDEO OUT (MOTHER)
DRIVE
RAMP
50/60
NF
GND
H-SYNC
H-VCC
X-OUT
X-RAY
NC
R
G
B
BLK
12V
GND
Y-IN
BRIGHT
P-TONE
CONT
COLOR
TINT
BLUE MUTE
ME SECAM
SIG 60. 5V
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

MODEL VT-2118M SCHEMATIC DIAGRAM: S-Out Unit

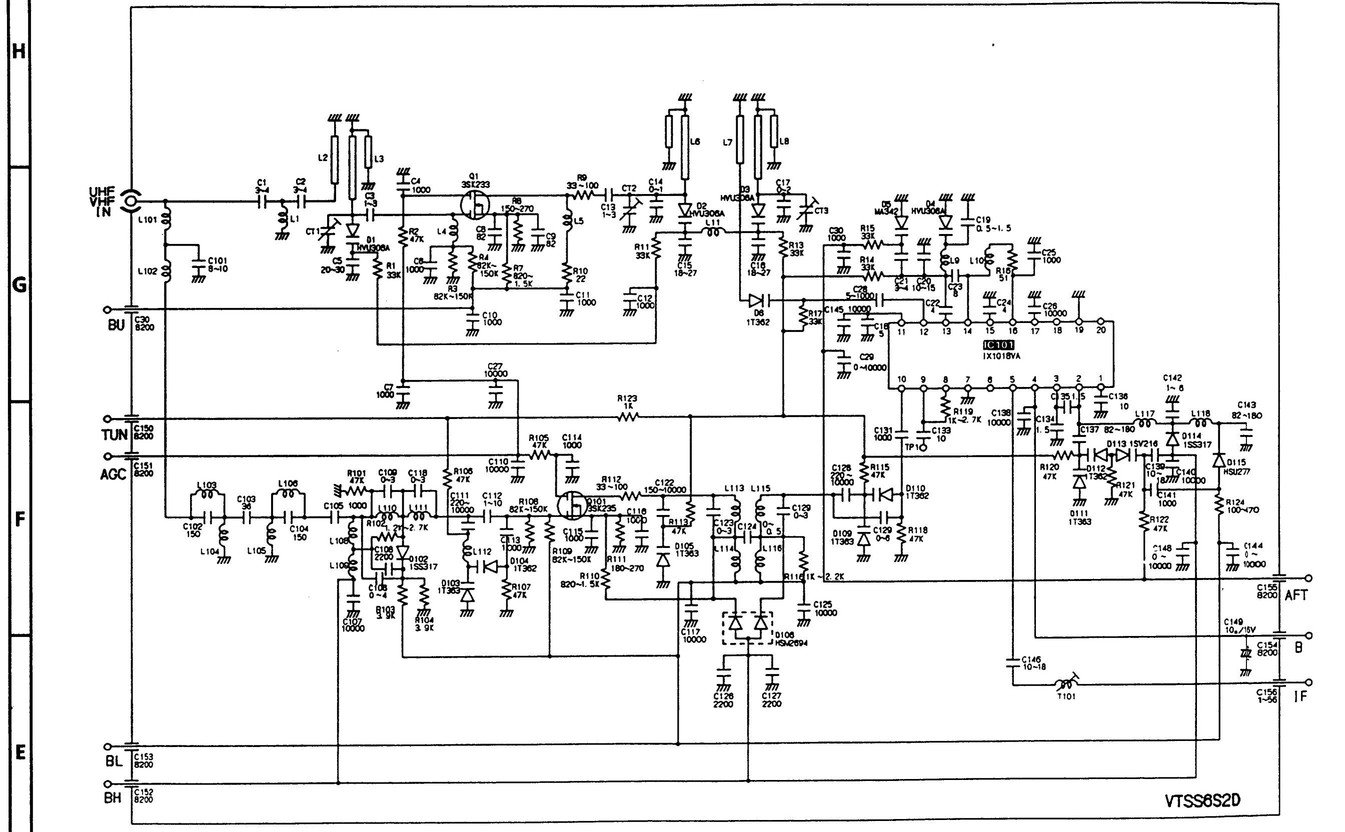
VT-2118M型 电路原理图：音频信号输出电路



H
G
F
E
D
C
B
A
1
2
3
4
5
6
SP301 VSP0080P-H28A
SP302 VSP0080P-H28A
(L)
(R)
P3002 N0041CE
(DD)
PWB-T
DUNTK8407WEVO
QPWBF8407PEZZ
C3024 .1(J) (ML)
R3016 4.7
C3023 470 (16V)
C3030 .1(J) (ML)
R3020 4.7
C3029 470 (16V)
C3032 .01 (16V) (AX)
C3031 470 (16V)
IC3002
S-AMP(L)
TDA7233
IC3003
S-AMP(R)
TDA7233
C3022 22 (16V)
C302 100 (16V)
R3015 3.9K
C3019 10 (16V)
C3020 .0047(J) (ML)
C3028 22 (16V)
C3027 100 (16V)
R3019 3.9K
C3025 10 (16V)
C3026 .0047(J) (ML)
IC3001
IX0241CE
S-ATT
C3001 10 (16V)
R3002 6.8K
R3001 10K
C3002 .0018 (25V) (AX)
C3003 10 (16V)
C3004 470 (16V)
D3001 1SS119
D3002 EX0315CE
R3006
(DA)
P3001 N0741CE
AF-IN
S-VOL
12V
GND
GND
S-VCC
TO MAIN(DA) PWB
TO MAIN(DB) PWB

Tuner 调谐器

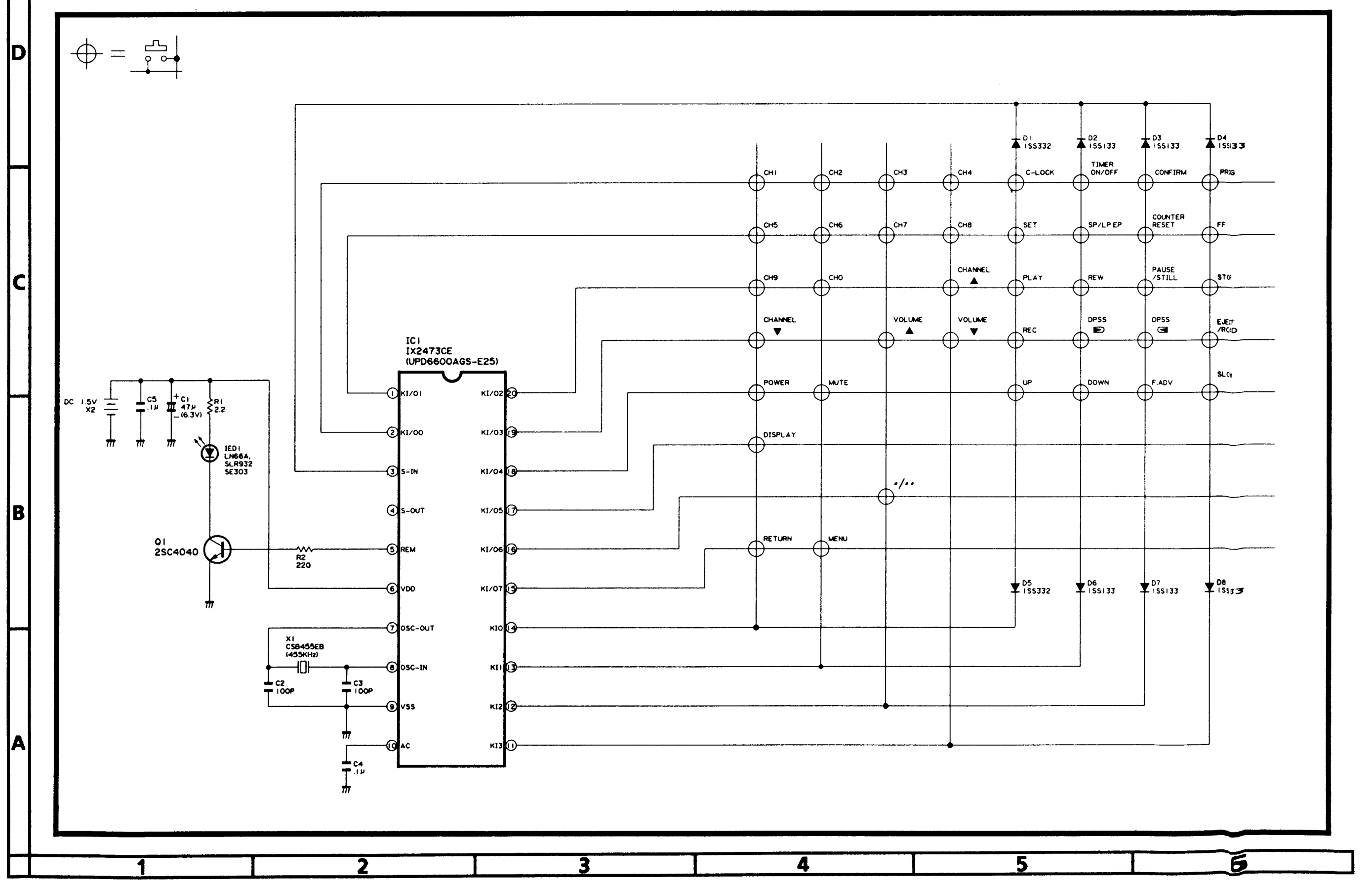
⚠VTUVTSS6S2D//



H
G
F
E
UHF VHF IN
BU
TUN
AGC
BL
BH
AFT
B
IF
Q1 3SK233
Q101 3SK235
IC101 IX1018VA
T101
VTSS6S2D

Infrared Remote Control Unit 红外线遥控器电路

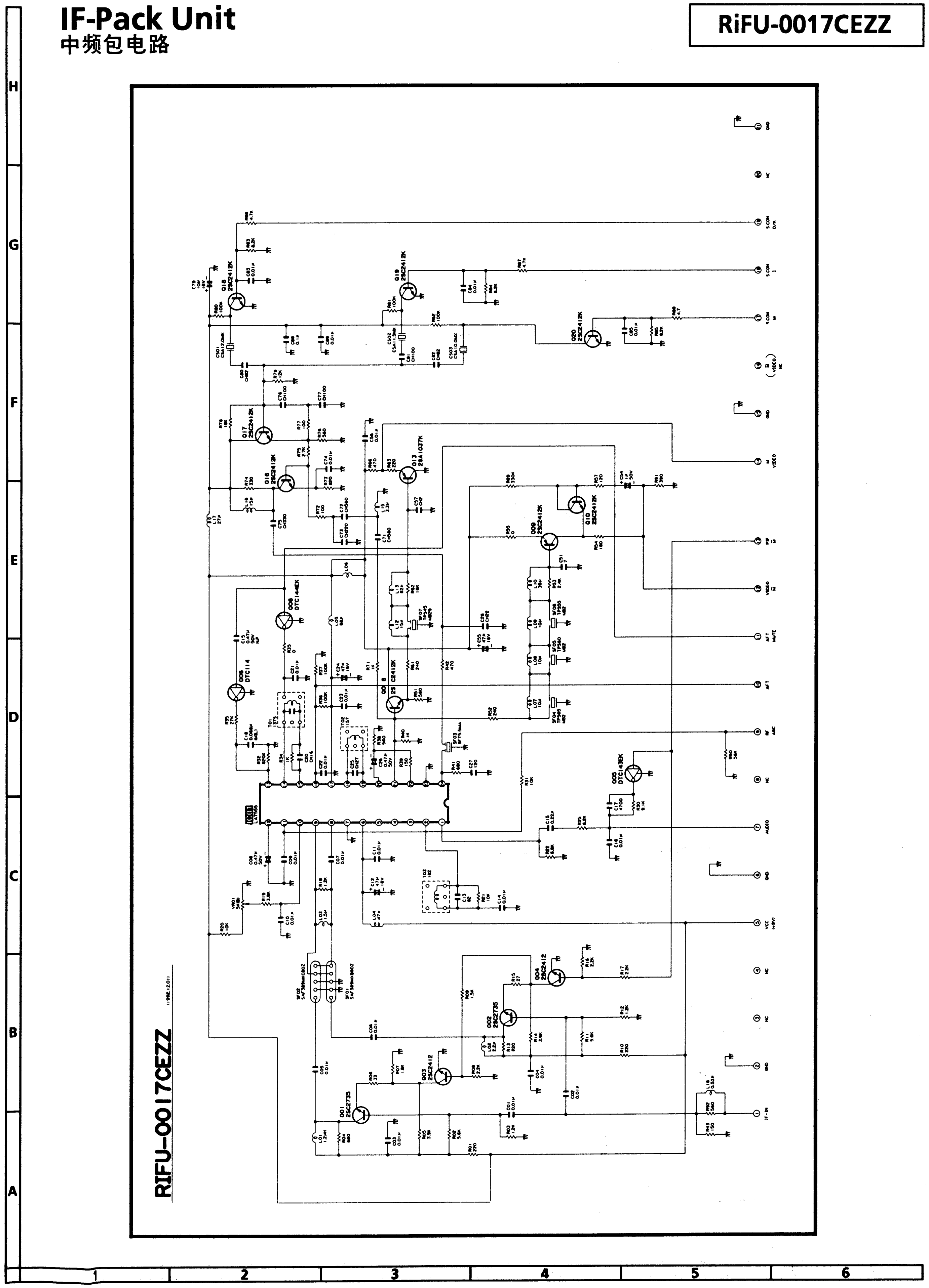
RRMCG1046PESA



D
C
B
A
1
2
3
4
5
6
IC1
IX2473CE
(UPD6600AGS-E25)
Q1 2SC4040
LED1 LN66A, SLR932 SE303
X1 CSB455EB (455KHz)
CH1
CH2
CH3
CH4
C-LOCK
TIMER ON/OFF
CONFIRM
PRG
CH5
CH6
CH7
CH8
SET
SP/LP.EP
COUNTER RESET
FF
CH9
CH0
CHANNEL ▲
PLAY
REW
PAUSE /STILL
STO
CHANNEL ▼
VOLUME ▲
VOLUME ▼
REC
DPSS
EJECT
POWER
MUTE
UP
DOWN
F.ADV
SLO
DISPLAY
RETURN
MENU
-/--
D1 1SS332
D2 1SS133
D3 1SS133
D4 1SS133
D5 1SS332
D6 1SS133
D7 1SS133
D8 1SS133

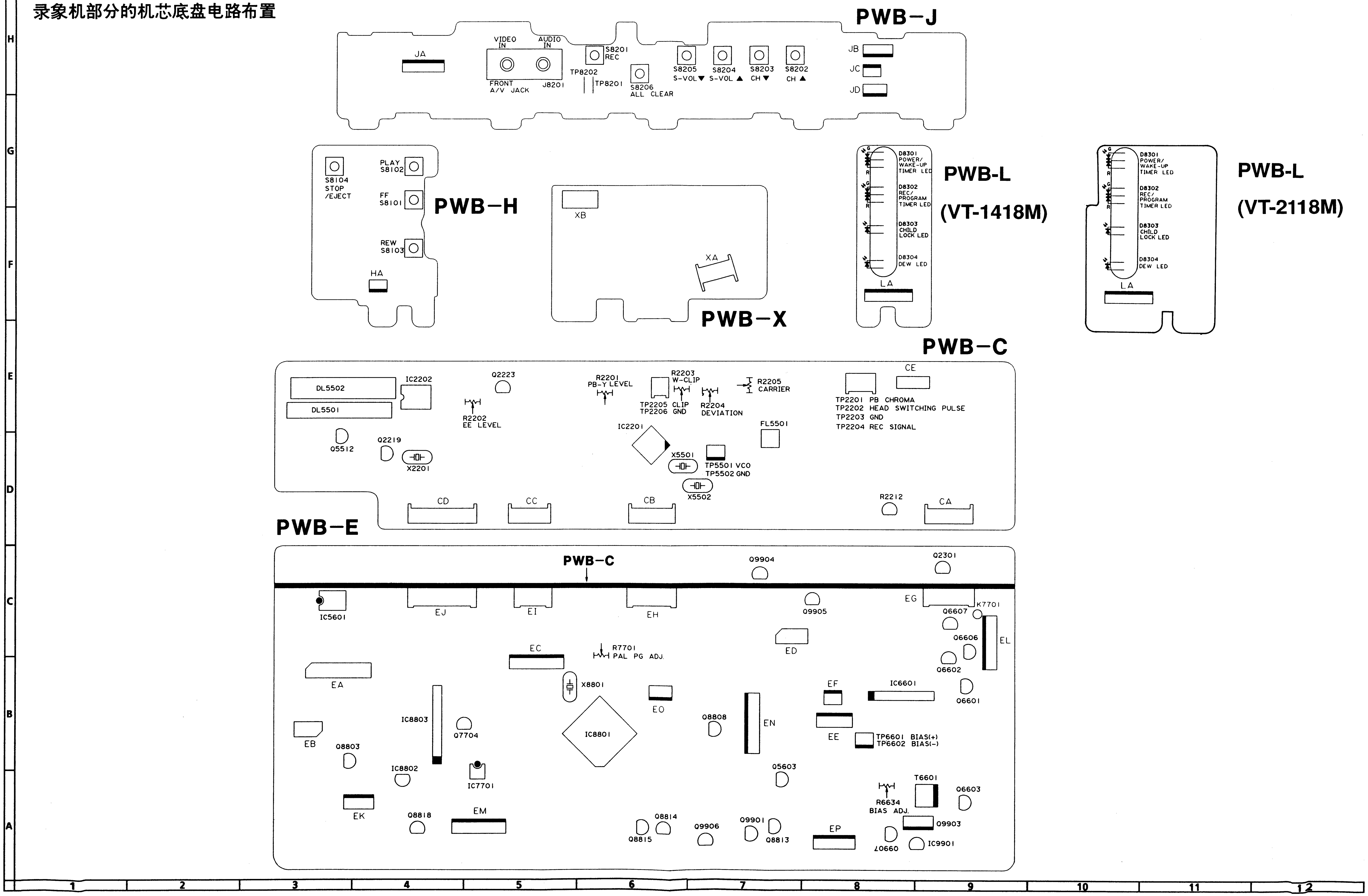
IF-Pack Unit
中频包电路

RiFU-0017CEZZ


RIFU-0017CEZZ
H
G
F
E
D
C
B
A
1
2
3
4
5
6

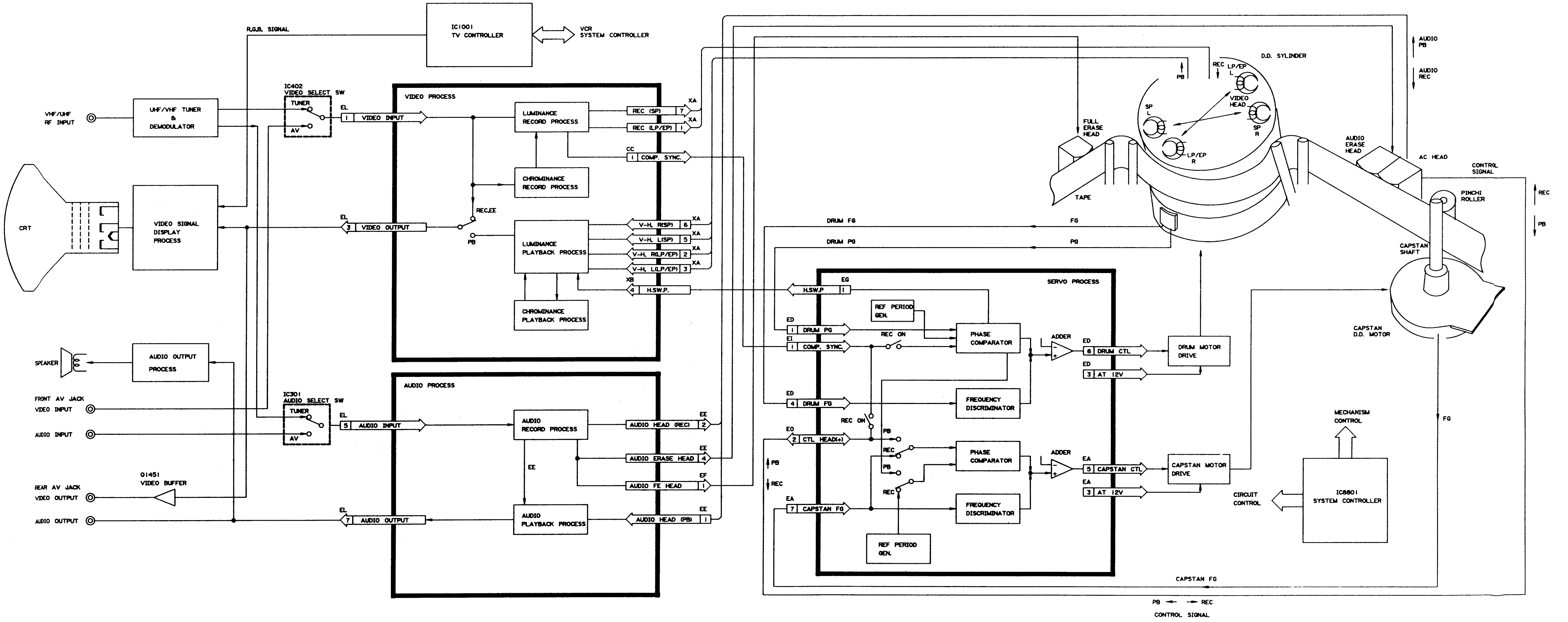
Memo

CHASSIS LAYOUT OF VCR SECTION
录象机部分的机芯底盘电路布置

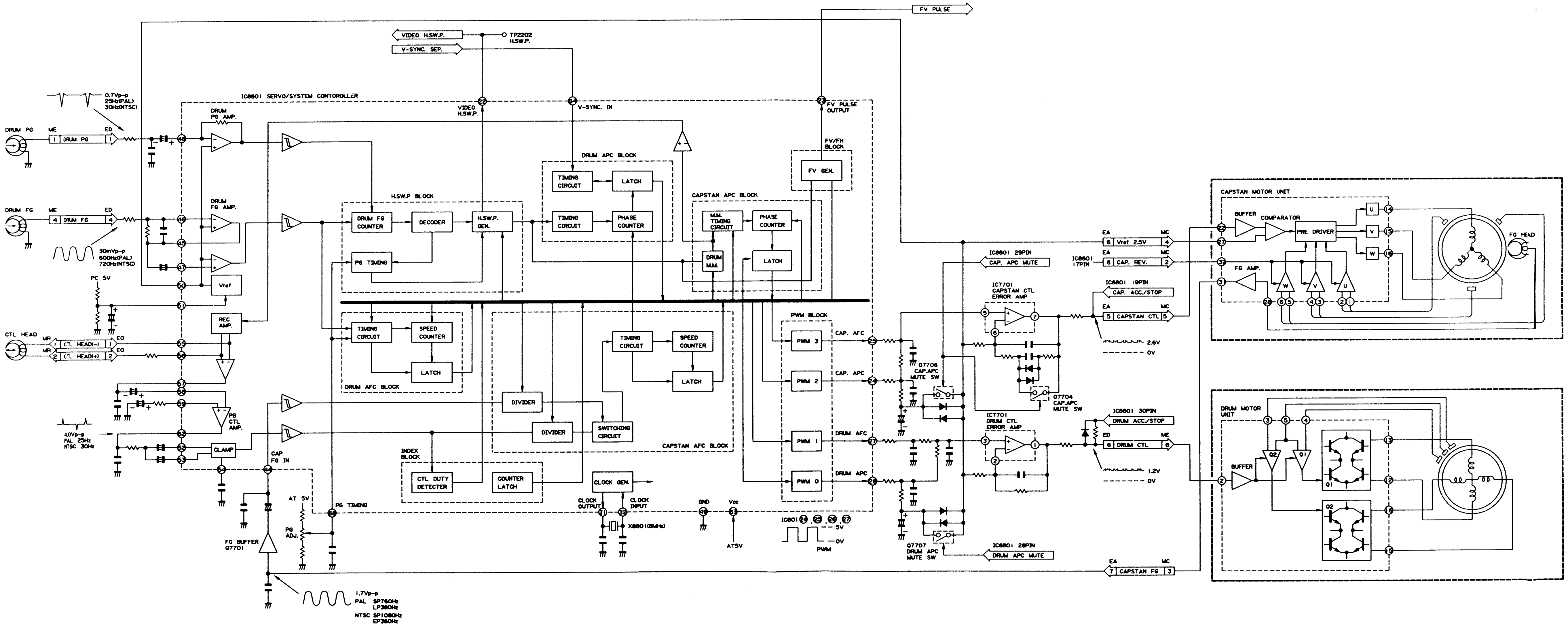

PWB-J
JA
VIDEO IN
AUDIO IN
FRONT A/V JACK
J8201
TP8202
TP8201
S8201 REC
S8206 ALL CLEAR
S8205 S-VOL▼
S8204 S-VOL▲
S8203 CH▼
S8202 CH▲
JB
JC
JD
PWB-H
S8104 STOP /EJECT
PLAY S8102
FF S8101
REW S8103
HA
PWB-X
XB
XA
PWB-L (VT-1418M)
PWB-L (VT-2118M)
D8301 POWER/ WAKE-UP TIMER LED
D8302 REC/ PROGRAM TIMER LED
D8303 CHILD LOCK LED
D8304 DEW LED
LA
PWB-C
DL5502
DL5501
IC2202
Q2223
Q5512
Q2219
X2201
R2202 EE LEVEL
R2201 PB-Y LEVEL
R2203 W-CLIP
TP2205 CLIP
TP2206 GND
R2204 DEVIATION
R2205 CARRIER
IC2201
X5501
X5502
TP5501 VCO
TP5502 GND
FL5501
CE
TP2201 PB CHROMA
TP2202 HEAD SWITCHING PULSE
TP2203 GND
TP2204 REC SIGNAL
R2212
CD
CC
CB
CA
PWB-E
PWB-C
Q9904
Q2301
IC5601
EJ
EI
EH
Q9905
EG
K7701
Q6607
Q6606
Q6602
EL
EC
R7701 PAL PG ADJ.
ED
EA
X8801
EF
IC6601
Q6601
EO
IC8803
Q7704
IC8801
Q8808
EN
EE
TP6601 BIAS(+)
TP6602 BIAS(-)
EB
Q8803
IC8802
IC7701
Q5603
T6601
R6634 BIAS ADJ.
Q6603
EK
Q8818
EM
Q8814
Q8815
Q9906
Q9901
Q8813
EP
Q9903
Q9907
IC9901
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

BLOCK DIAGRAM OF VCR SECTION
录象机部分的电路方框图

■ OVERALL BLOCK DIAGRAM
■整体电路方框图

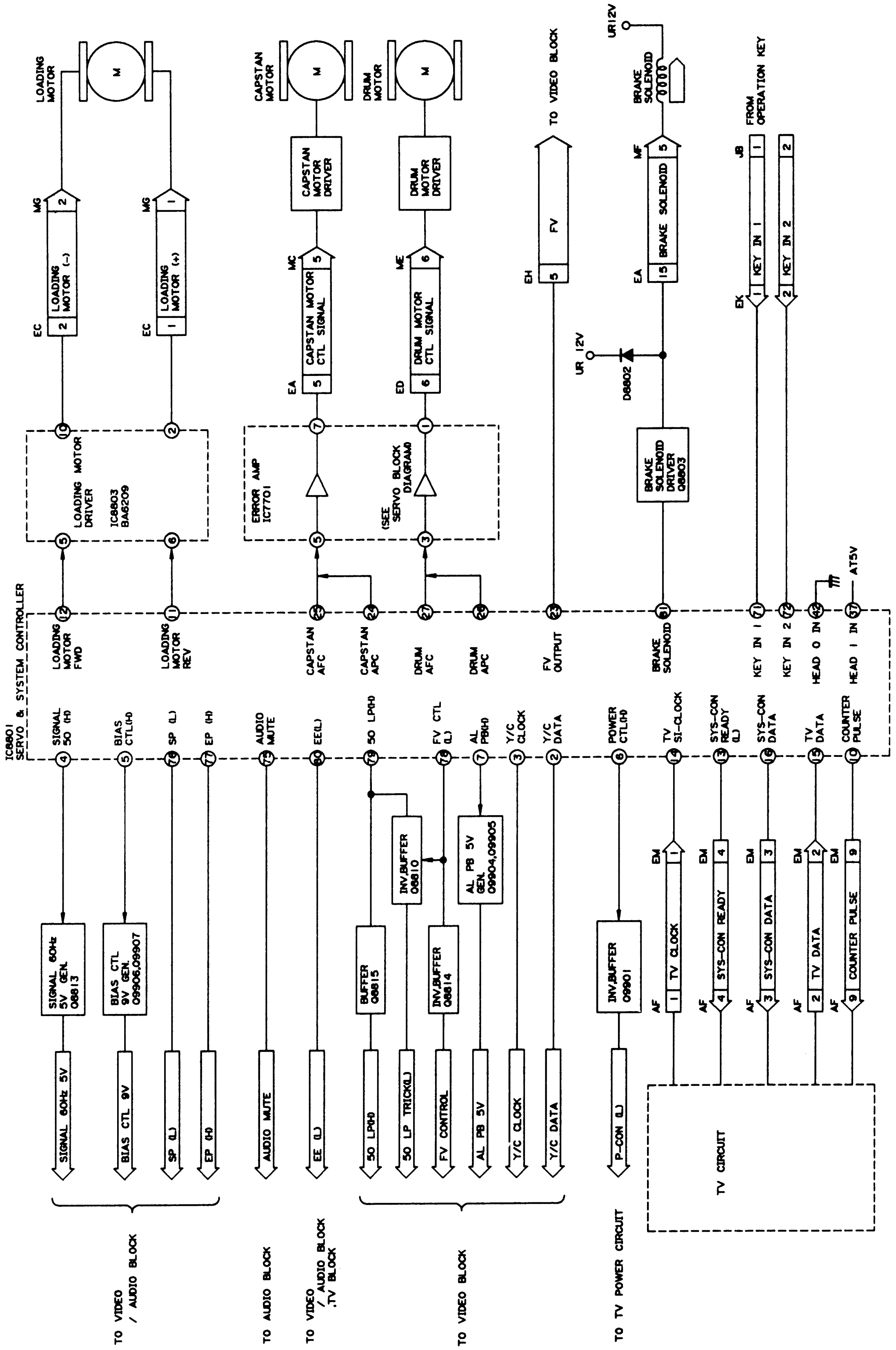

IC1001
TV CONTROLLER
R.G.B. SIGNAL
VCR
SYSTEM CONTROLLER
VHF/UHF
RF INPUT
UHF/VHF TUNER
&
DEMODULATOR
IC402
VIDEO SELECT SW
TUNER
AV
EL
1 VIDEO INPUT
VIDEO PROCESS
LUMINANCE
RECORD PROCESS
REC (SP) 7
REC (LP/EP) 1
XA
CC
1 COMP. SYNC.
CHROMINANCE
RECORD PROCESS
CRT
VIDEO SIGNAL
DISPLAY
PROCESS
REC,EE
PB
3 VIDEO OUTPUT
LUMINANCE
PLAYBACK PROCESS
V-H, R(SP) 6
V-H, L(SP) 5
V-H, R(LP/EP) 2
V-H, L(LP/EP) 3
XB
4 H.SW.P.
CHROMINANCE
PLAYBACK PROCESS
SPEAKER
AUDIO OUTPUT
PROCESS
FRONT AV JACK
VIDEO INPUT
AUDIO INPUT
IC301
AUDIO SELECT SW
5 AUDIO INPUT
AUDIO PROCESS
AUDIO
RECORD PROCESS
EE
AUDIO HEAD (REC) 2
AUDIO ERASE HEAD 4
EF
AUDIO FE HEAD 1
Q1451
VIDEO BUFFER
REAR AV JACK
VIDEO OUTPUT
AUDIO OUTPUT
7 AUDIO OUTPUT
AUDIO
PLAYBACK PROCESS
AUDIO HEAD (PB) 1
AUDIO
PB
AUDIO
REC
D.D. SYLINDER
PB
REC
LP/EP
L
VIDEO
HEAD
SP
L
SP
R
LP/EP
R
FULL
ERASE
HEAD
TAPE
AUDIO
ERASE
HEAD
AC HEAD
CONTROL
SIGNAL
PINCHI
ROLLER
REC
PB
CAPSTAN
SHAFT
DRUM FG
FG
DRUM PG
PG
SERVO PROCESS
EG
H.SW.P 1
REF PERIOD
GEN.
ED
1 DRUM PG
EI
1 COMP. SYNC.
REC ON
PHASE
COMPARATOR
ADDER
6 DRUM CTL
3 AT 12V
DRUM MOTOR
DRIVE
4 DRUM FG
FREQUENCY
DISCRIMINATOR
EO
2 CTL HEAD(+)
PB
REC
EA
5 CAPSTAN CTL
3 AT 12V
CAPSTAN MOTOR
DRIVE
7 CAPSTAN FG
REF PERIOD
GEN.
CAPSTAN
D.D. MOTOR
FG
MECHANISM
CONTROL
CIRCUIT
CONTROL
IC8801
SYSTEM CONTROLLER
CAPSTAN FG
PB ← → REC
CONTROL SIGNAL

■ SERVO PROCESS BLOCK DIAGRAM
■伺服系统电路方框图


FV PULSE
VIDEO H.SW.P.
V-SYNC. SEP.
TP2202 H.SW.P.
IC8801 SERVO/SYSTEM CONTOROLLER
VIDEO H.SW.P.
V-SYNC. IN
FV PULSE OUTPUT
0.7Vp-p 25Hz(PAL) 30Hz(NTSC)
DRUM PG
ME
DRUM PG
ED
DRUM PG AMP.
DRUM FG
DRUM FG
DRUM FG AMP.
30mVp-p 600Hz(PAL) 720Hz(NTSC)
PC 5V
Vref
REC AMP.
CTL HEAD
MR
CTL HEAD(-)
CTL HEAD(+)
EO
PB CTL AMP.
4.0Vp-p PAL 25Hz NTSC 30Hz
CLAMP
CAP FG IN
AT 5V
PG ADJ.
PG TIMING
FG BUFFER Q7701
1.7Vp-p PAL SP760Hz LP380Hz NTSC SP1080Hz EP360Hz
H.SW.P BLOCK
DRUM FG COUNTER
DECODER
H.SW.P. GEN.
PG TIMING
DRUM APC BLOCK
TIMING CIRCUIT
LATCH
PHASE COUNTER
FV/FH BLOCK
FV GEN.
CAPSTAN APC BLOCK
M.M. TIMING CIRCUIT
DRUM M.M.
DRUM AFC BLOCK
SPEED COUNTER
DIVIDER
SWITCHING CIRCUIT
CAPSTAN AFC BLOCK
INDEX BLOCK
CTL DUTY DETECTER
COUNTER LATCH
CLOCK GEN.
CLOCK OUTPUT
CLOCK INPUT
X8801(8MHz)
GND
Vcc
AT5V
PWM BLOCK
PWM 3
PWM 2
PWM 1
PWM 0
CAP. AFC
CAP. APC
DRUM AFC
DRUM APC
IC8801 24 . 25 . 26 . 27
5V
0V
PWM
Q7706 CAP.APC MUTE SW
Q7704 CAP.APC MUTE SW
Q7707 DRUM APC MUTE SW
IC8801 29PIN
CAP. APC MUTE
IC8801 17PIN
CAP. REV.
IC7701 CAPSTAN CTL ERROR AMP
IC8801 19PIN
CAP. ACC./STOP
EA
MC
Vref 2.5V
CAPSTAN CTL
2.6V
0V
IC7701 DRUM CTL ERROR AMP
IC8801 30PIN
DRUM ACC./STOP
DRUM CTL
1.2V
0V
IC8801 28PIN
DRUM APC MUTE
CAPSTAN FG
CAPSTAN MOTOR UNIT
BUFFER
COMPARATOR
PRE DRIVER
FG AMP.
U
V
W
FG HEAD
DRUM MOTOR UNIT
BUFFER
Q1
Q2

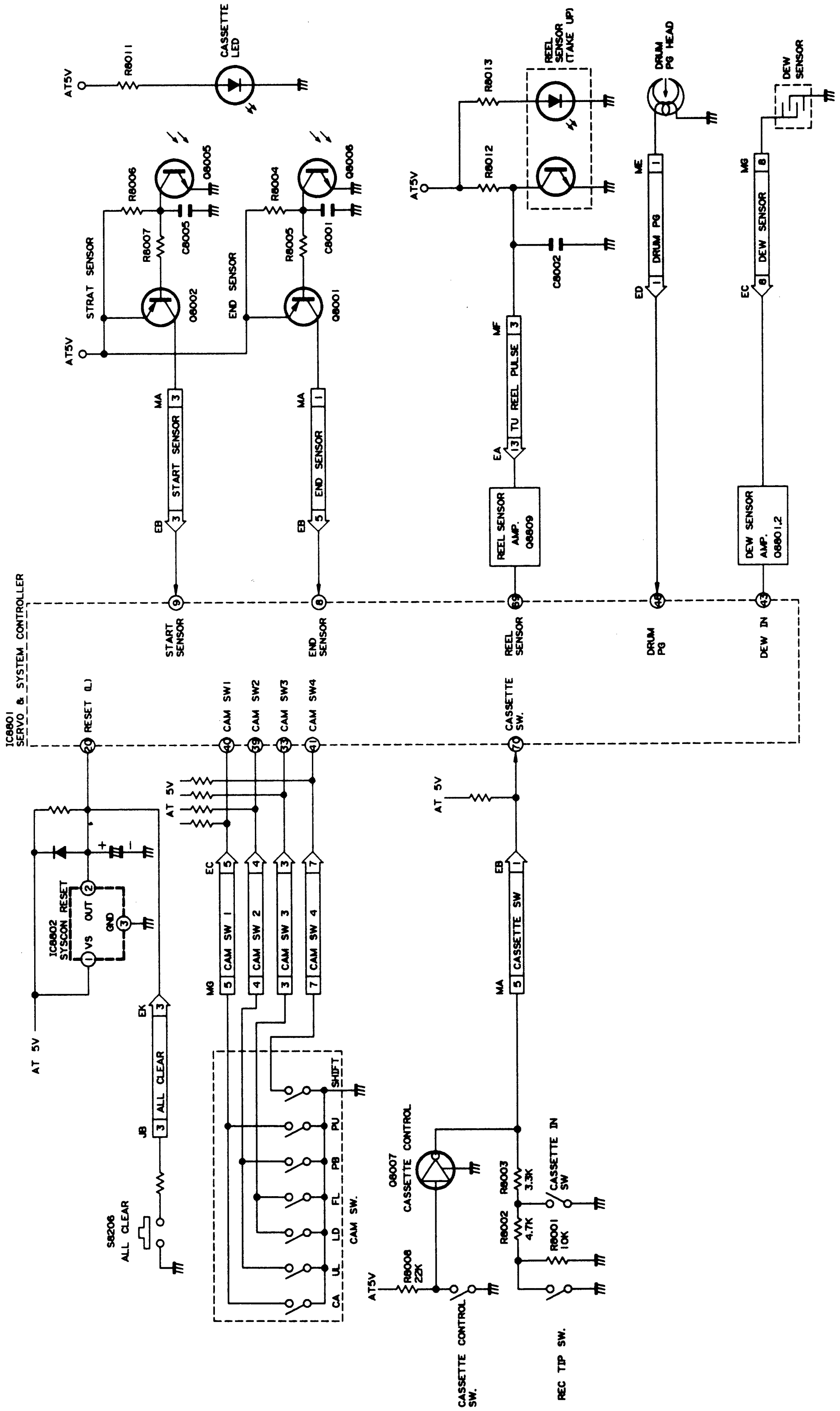
■ SYSTEM CONTROL BLOCK DIAGRAM

■系统控制电路方框图

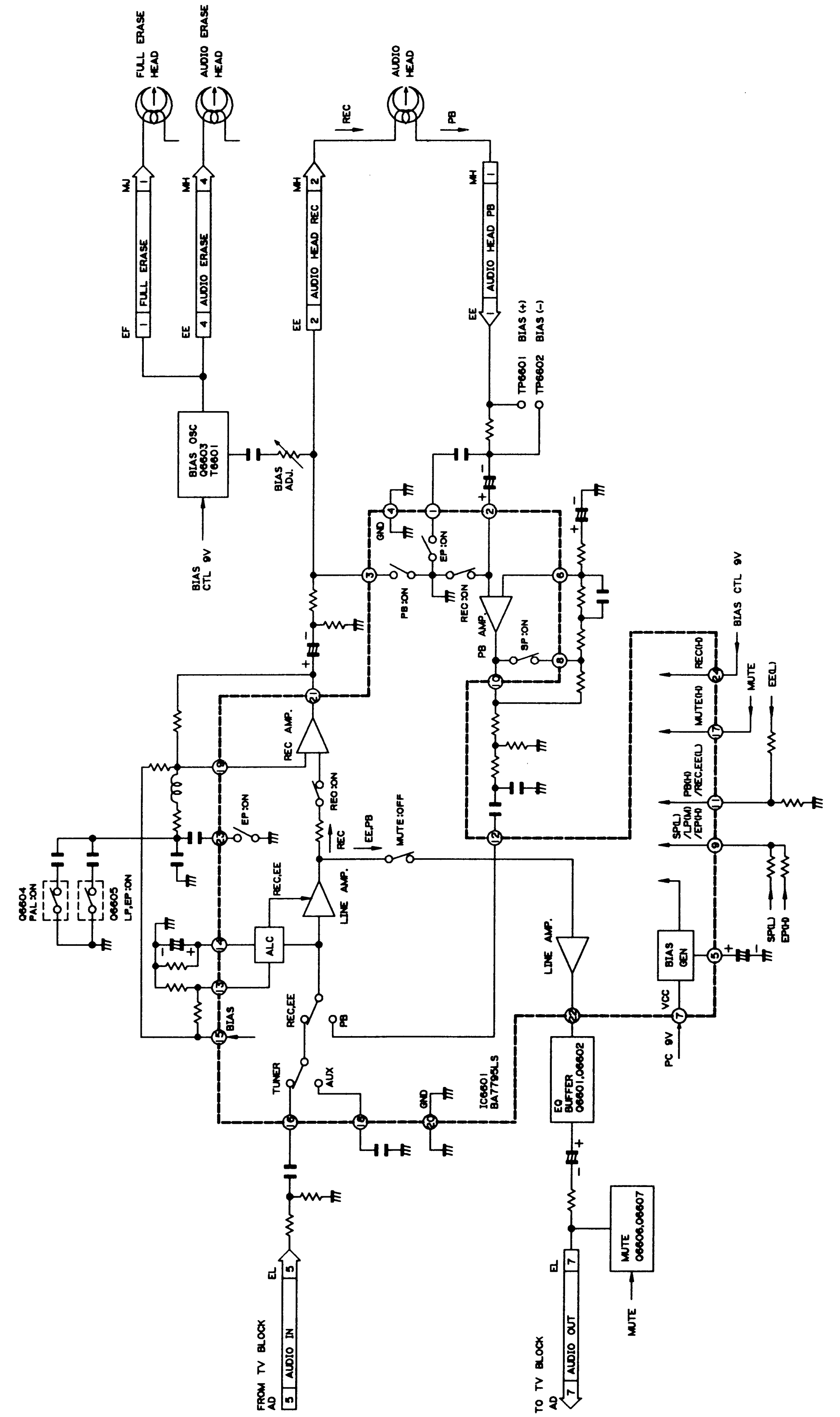

LOADING MOTOR
CAPSTAN MOTOR
DRUM MOTOR
CAPSTAN MOTOR DRIVER
DRUM MOTOR DRIVER
TO VIDEO BLOCK
UR12V
BRAKE SOLENOID
FROM OPERATION KEY
LOADING MOTOR (-)
LOADING MOTOR (+)
CAPSTAN MOTOR CTL SIGNAL
DRUM MOTOR CTL SIGNAL
FV
KEY IN 1
KEY IN 2
UR 12V
D8802
LOADING MOTOR DRIVER IC8803 BA6209
ERROR AMP IC7701
(SEE SERVO BLOCK DIAGRAM)
BRAKE SOLENOID DRIVER Q8803
AT5V
IC8801 SERVO & SYSTEM CONTROLLER
LOADING MOTOR FWD
LOADING MOTOR REV
CAPSTAN AFC
CAPSTAN APC
DRUM AFC
DRUM APC
FV OUTPUT
BRAKE SOLENOID
KEY IN 1
KEY IN 2
HEAD 0 IN
HEAD 1 IN
SIGNAL 50 (H)
BIAS CTL(H)
SP (L)
EP (H)
AUDIO MUTE
EE(L)
50 LP(H)
FV CTL (L)
AL PB(H)
Y/C CLOCK
Y/C DATA
POWER CTL(H)
TV SI-CLOCK
SYS-CON READY (L)
SYS-CON DATA
TV DATA
COUNTER PULSE
INV.BUFFER Q8810
AL PB 5V GEN. Q9904,Q9905
SIGNAL 60Hz 5V GEN. Q8813
BIAS CTL 9V GEN. Q9906,Q9907
BUFFER Q8815
INV.BUFFER Q8814
INV.BUFFER Q9901
TV CLOCK
SYS-CON READY
SYS-CON DATA
TV DATA
COUNTER PULSE
SIGNAL 60Hz 5V
BIAS CTL 9V
SP (L)
EP (H)
AUDIO MUTE
EE (L)
50 LP(H)
50 LP TRICK(L)
FV CONTROL
AL PB 5V
Y/C CLOCK
Y/C DATA
P-CON (L)
TV CIRCUIT
TO VIDEO / AUDIO BLOCK
TO AUDIO BLOCK
TO VIDEO / AUDIO BLOCK ,TV BLOCK
TO VIDEO BLOCK
TO TV POWER CIRCUIT

■ SAFETY DEVICE BLOCK DIAGRAM

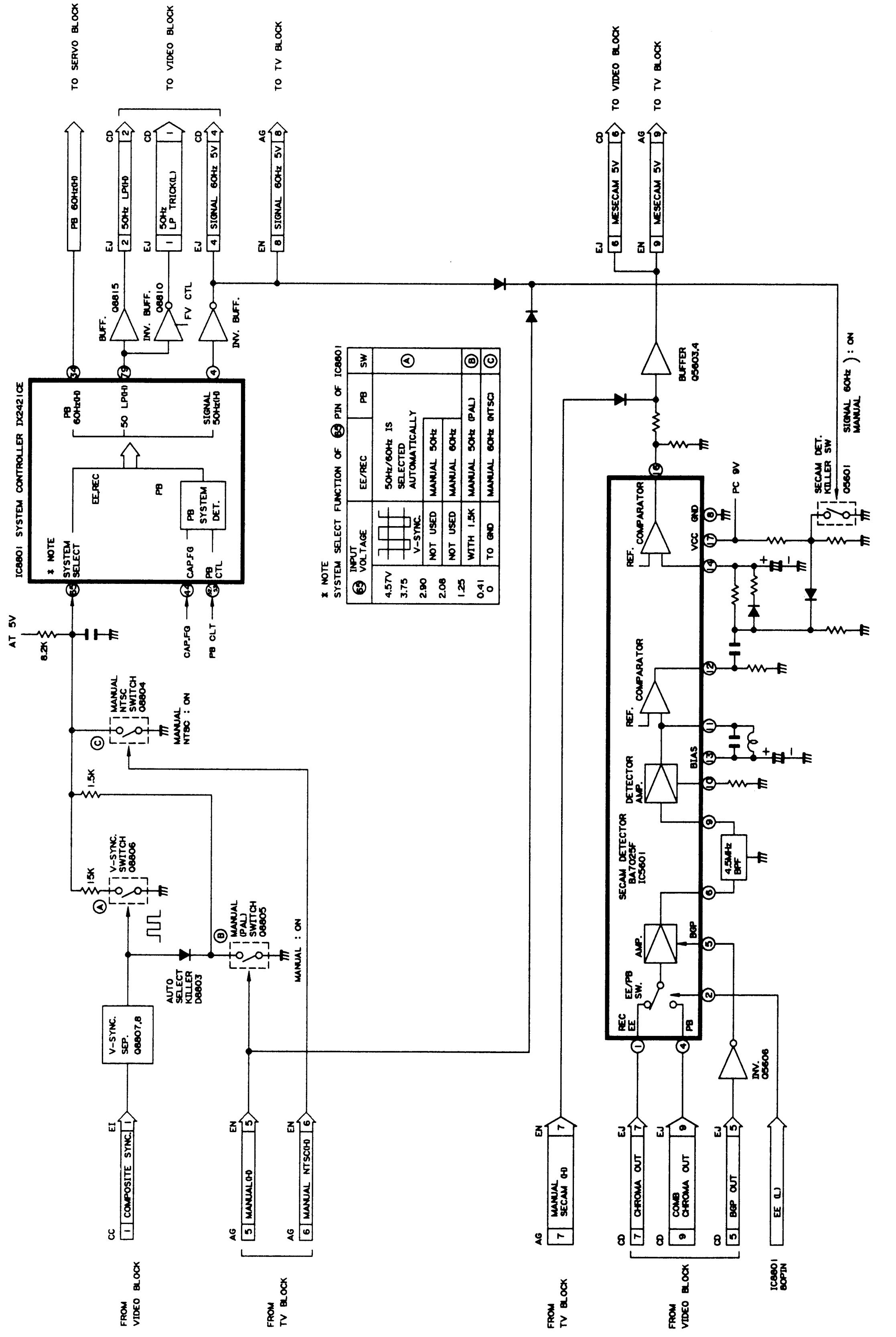
■安全装置电路方框图


AT5V
R8011
CASSETTE LED
R8013
REEL SENSOR (TAKE UP)
DRUM PG HEAD
DEW SENSOR
R8006
Q8005
R8004
Q8006
R8012
R8007
C8005
R8005
C8001
C8002
STRAT SENSOR
Q8002
END SENSOR
Q8001
DRUM PG
DEW SENSOR
TU REEL PULSE
START SENSOR
END SENSOR
REEL SENSOR AMP. Q8809
DEW SENSOR AMP. Q8801,2
IC8801 SERVO & SYSTEM CONTROLLER
START SENSOR
END SENSOR
REEL SENSOR
DRUM PG
DEW IN
RESET (L)
CAM SW1
CAM SW2
CAM SW3
CAM SW4
CASSETTE SW.
AT 5V
IC8802 SYSCON RESET
VS
OUT
GND
CAM SW 1
CAM SW 2
CAM SW 3
CAM SW 4
CASSETTE SW
ALL CLEAR
S8206 ALL CLEAR
SHIFT
PU
PB
FL
LD
UL
CA
CAM SW.
Q8007 CASSETTE CONTROL
R8003 3.3K
CASSETTE IN SW
R8002 4.7K
R8001 10K
R8008 22K
CASSETTE CONTROL SW.
REC TIP SW.

■ AUDIO BLOCK DIAGRAM
■音频信号电路方框图


FULL ERASE HEAD
AUDIO ERASE HEAD
AUDIO HEAD
REC
PB
MJ
MH
EF
EE
1 FULL ERASE
4 AUDIO ERASE
2 AUDIO HEAD REC
1 AUDIO HEAD PB
TP6601 BIAS (+)
TP6602 BIAS (-)
BIAS OSC Q6603 T6601
BIAS ADJ.
BIAS CTL 9V
GND
EP:ON
PB:ON
REC:ON
PB AMP.
REC AMP.
REC:ON
REC
EE,PB
MUTE:OFF
LINE AMP.
REC,EE
ALC
BIAS
TUNER
AUX
GND
IC6601 BA7795LS
Q6604 PAL:ON
Q6605 LP,EP:ON
BIAS CTL 9V
REC(H)
MUTE
EE(L)
MUTE(H)
PB(H) /REC,EE(L)
SP(L) /LP(M) /EP(H)
SP(L) EP(H)
BIAS GEN
VCC
PC 9V
LINE AMP.
EQ BUFFER Q6601,Q6602
MUTE Q6606,Q6607
MUTE
EL
5 AUDIO IN
FROM TV BLOCK AD
7 AUDIO OUT
TO TV BLOCK AD

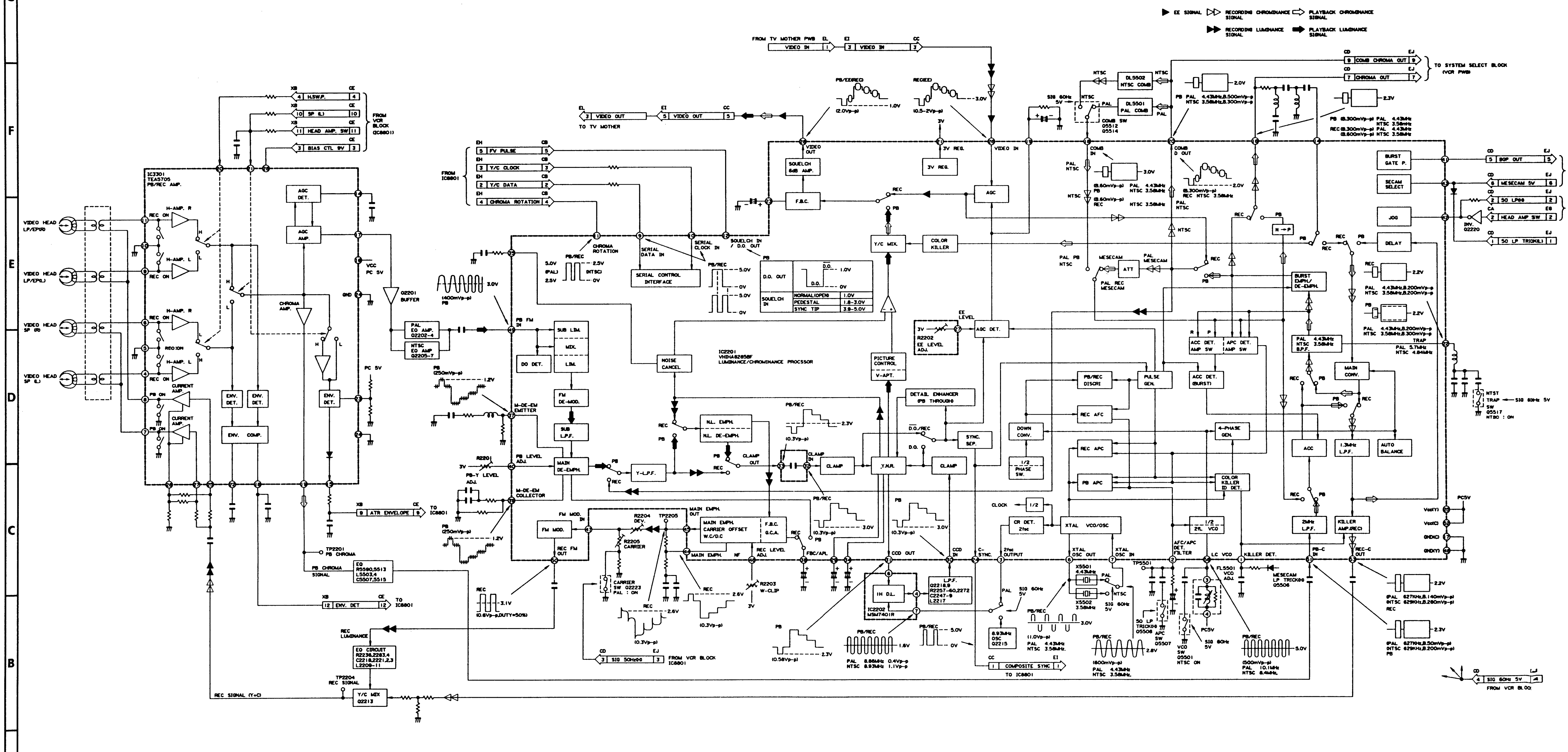
■ SYSTEM SELECT BLOCK DIAGRAM
■系统选择电路方框图


TO SERVO BLOCK
TO VIDEO BLOCK
TO TV BLOCK
TO VIDEO BLOCK
TO TV BLOCK
PB 60Hz(H)
2 50Hz LP(H)
1 50Hz LP TR(CK)(L)
4 SIGNAL 60Hz 5V
8 SIGNAL 60Hz 5V
8 MESECAM 5V
9 MESECAM 5V
EJ
EN
CB
AG
BUFF. Q6815
INV. BUFF. Q6810
FV CTL
INV. BUFF.
IC6801 SYSTEM CONTROLLER IX2421CE
PB 60Hz(H)
50 LP(H)
SIGNAL 50Hz(H)
EE,REC
PB
PB SYSTEM DET.
※ NOTE SYSTEM SELECT
CAP.FG
PB CTL
AT 5V
8.2K
CAP.FG
PB CLT
MANUAL NTSC SWITCH Q6804
MANUAL NTSC : ON
1.5K
15K
V-SYNC. SWITCH Q6806
MANUAL (PAL) SWITCH Q6805
MANUAL : ON
AUTO SELECT KILLER D6803
V-SYNC. SEP. Q6807,8
1 COMPOSITE SYNC.
FROM VIDEO BLOCK
5 MANUAL(H)
6 MANUAL NTSC(H)
FROM TV BLOCK
BUFFER Q5603,4
SIGNAL 60Hz) : ON MANUAL
SECAM DET. KILLER SW Q5601
PC 9V
REF. COMPARATOR
VCC
GND
REF. COMPARATOR
DETECTOR AMP.
BIAS
4.5MHz BPF
SECAM DETECTOR BA7025F IC5601
AMP.
BGP
EE/PB SW.
REC EE
PB
INV. Q5606
7 MANUAL SECAM (H)
FROM TV BLOCK
7 CHROMA OUT
9 COMB CHROMA OUT
5 BGP OUT
FROM VIDEO BLOCK
EE (L)
IC6801 80PIN

※ NOTE
SYSTEM SELECT FUNCTION OF (65) PIN OF IC6801

(65) INPUT VOLTAGE		EE/REC	PB	SW
4.57V 3.75	V-SYNC.	50Hz/60Hz IS SELECTED AUTOMATICALLY		Ⓐ
2.90	NOT USED	MANUAL 50Hz		
2.08	NOT USED	MANUAL 60Hz		
1.25	WITH 1.5K	MANUAL 50Hz (PAL)		Ⓑ
0.41 0	TO GND	MANUAL 60Hz (NTSC)		Ⓒ

■ VIDEO SIGNAL FLOW BLOCK DIAGRAM
■视频信号流程方框图


EE SIGNAL
RECORDING CHROMINANCE SIGNAL
PLAYBACK CHROMINANCE SIGNAL
RECORDING LUMINANCE SIGNAL
PLAYBACK LUMINANCE SIGNAL
FROM TV MOTHER PWB
VIDEO IN
VIDEO OUT
TO TV MOTHER
COMB CHROMA OUT
CHROMA OUT
TO SYSTEM SELECT BLOCK (VCR PWB)
DL5502 NTSC COMB
DL5501 PAL COMB
PB PAL 4.43MHz,B.500mVp-p
NTSC 3.58MHz,B.300mVp-p
H.SWP.
SP (L)
HEAD AMP. SW
BIAS CTL 9V
FROM VCR BLOCK (IC8801)
IC3301 TEA5705 PB/REC AMP.
VIDEO HEAD LP/EP(R)
VIDEO HEAD LP/EP(L)
VIDEO HEAD SP (R)
VIDEO HEAD SP (L)
H-AMP. R
H-AMP. L
CURRENT AMP.
AGC DET.
AGC AMP.
CHROMA AMP.
ENV. DET.
ENV. COMP.
VCC PC 5V
Q2201 BUFFER
FV PULSE
Y/C CLOCK
Y/C DATA
CHROMA ROTATION
FROM IC8801
SERIAL CLOCK IN
SERIAL DATA IN
SERIAL CONTROL INTERFACE
SQUELCH IN / D.O. OUT
SQUELCH 6dB AMP.
F.B.C.
3V REG.
AGC
Y/C MIX.
COLOR KILLER
D.O. OUT
NORMAL(OPEN) 1.0V
PEDESTAL 1.8-3.0V
SYNC TIP 3.8-5.0V
PAL EQ AMP. Q2202-4
NTSC EQ AMP Q2205-7
PB FM IN
SUB LIM.
MIX.
LIM.
DO DET.
FM DE-MOD.
SUB L.P.F.
MAIN DE-EMPH.
Y-L.P.F.
PB LEVEL ADJ.
R2201 PB-Y LEVEL ADJ.
M-DE-EM EMITTER
M-DE-EM COLLECTOR
NOISE CANCEL
IC2201 VHIHA82858F LUMINANCE/CHROMINANCE PROCESSOR
N.L. EMPH.
N.L. DE-EMPH.
CLAMP
Y.N.R.
PICTURE CONTROL
V-APT.
DETAIL ENHANCER (PB THROUGH)
SYNC. SEP.
R2202 EE LEVEL ADJ.
AGC DET.
PB/REC DISCRI
PULSE GEN.
ACC DET. (BURST)
REC AFC
REC APC
PB APC
DOWN CONV.
1/2 PHASE SW.
4-PHASE GEN.
COLOR KILLER ID DET.
CR DET. 2fsc
XTAL VCO/OSC
1/2 2fL VCO
ACC DET. AMP SW
APC DET. AMP SW
PAL 4.43MHz NTSC 3.58MHz B.P.F.
MAIN CONV.
ACC
1.3MHz L.P.F.
AUTO BALANCE
2MHz L.P.F.
KILLER AMP.(REC)
BURST GATE P.
SECAM SELECT
JOG
DELAY
BURST EMPH./DE-EMPH.
ATT
BGP OUT
MESECAM 5V
50 LP
HEAD AMP SW
50 LP TRICK(L)
TO/FROM SYSTEM SELECT BLOCK
FROM VCR BLOCK (IC8801)
FROM VCR BLOCK
FM MOD.
REC FM OUT
MAIN EMPH. CARRIER OFFSET W.C/D.C
F.B.C. G.C.A.
R2204 DEV.
R2205 CARRIER
CARRIER SW Q2223 PAL : ON
R2203 W-CLIP
REC LEVEL ADJ.
ATR ENVELOPE
ENV. DET
TO IC8801
TP2201 PB CHROMA
PB CHROMA SIGNAL
EQ R5580,5513 L5503,4 C5507,5515
REC LUMINANCE
EQ CIRCUIT R2236,2283,4 C2218,2221,2,3 L2209-11
TP2204 REC SIGNAL
Y/C MIX Q2213
REC SIGNAL (Y+C)
SIG 50Hz
IC2202 MSM7401R
1H D.L.
L.P.F. Q2218,9 R2257-60,2272 C2247-9 L2217
COMPOSITE SYNC
8.93MHz OSC Q2215
X5501 4.43MHz
X5502 3.58MHz
FL5501 VCO ADJ.
MESECAM LP TRICK(H) Q5506
50 LP TRICK(H) Q5508
VCO SW Q5501 NTSC ON
APC SW Q5507
NTST TRAP SW Q5517 NTSC : ON
SIG 60Hz 5V
Vcc(Y)
Vcc(C)
GND(C)
GND(Y)
PC5V

DESCRIPTION OF VCR SECTION SCHEMATIC DIAGRAM

电路原理图

IMPORTANT SAFETY NOTICE:

BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET. PARTS MARKED WITH "⚠" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET. BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

NOTES:

1. *The unit of resistance "ohm" is omitted (K = 1000 ohm, M = 1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *The unit of capacitance "F" is omitted (μ = μF, p = μμF).*
4. *The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *DC voltages are measured between points indicated and chassis ground by VTVM, with AC220~240V, 50Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.*
2. *Voltages are measured with 10000μV B & W or colour signal.*

WAVEFORM MEASUREMENT CONDITIONS:

10000μV 87.5 percent modulated colour bar signal is fed into tuner.

CAUTION:

This circuit diagram is original one. Therefore there may be a slight difference from yours.

安全使用注意要点：

为了保证本装置的安全性及可靠性，务请使用该型号装置的原配零件。

注有⚠标记以及打有黑色阴影线的部件，对于保护本装置的安全，保持其使用性能及使用寿命极其重要。

更换这些部件时，务请使用规定编号者。

安全使用注意事项：

1.在进行部件更换之前，务请拔出电源插头。
2.本装置工作时，机芯底盘的半导体散热片有触电之虑，务请注意。

电路单位说明：

1.电阻“欧姆”（Ω）单位予以略记（K＝千欧，M＝兆欧姆）。
2.除特别说明者外，图中电阻功率均为1/8瓦特。
3.电容“法拉”（F）单位予以略记（μ＝微法拉，P＝微微法拉）。
4.在括弧内的数值为PB状态，无括弧的数值为REC状态。

电压测定条件

1.除特别说明者外，直流电压是以220～240V，50/60Hz交流电源供给本装置时，将所有控制调节都调至正常状态后，把VTVM（电子管电压表）连接于测点与底盘接地之间所得的读数。
2.电压由10000μV黑白或彩色信号测定。

波形测定条件：

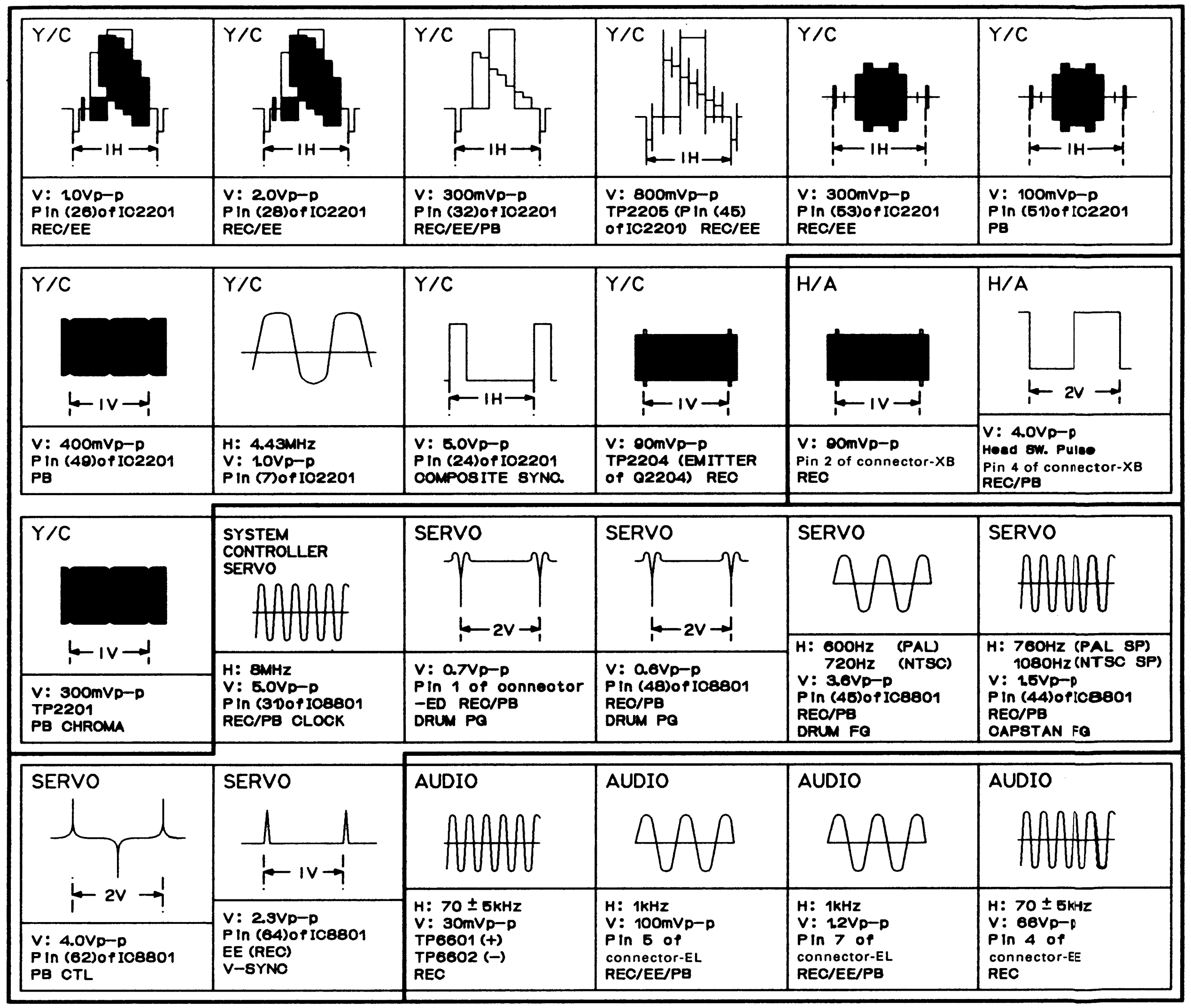
向调谐器输入10000μV的87.5％调制色带信号的状态时进行测量。

注意：

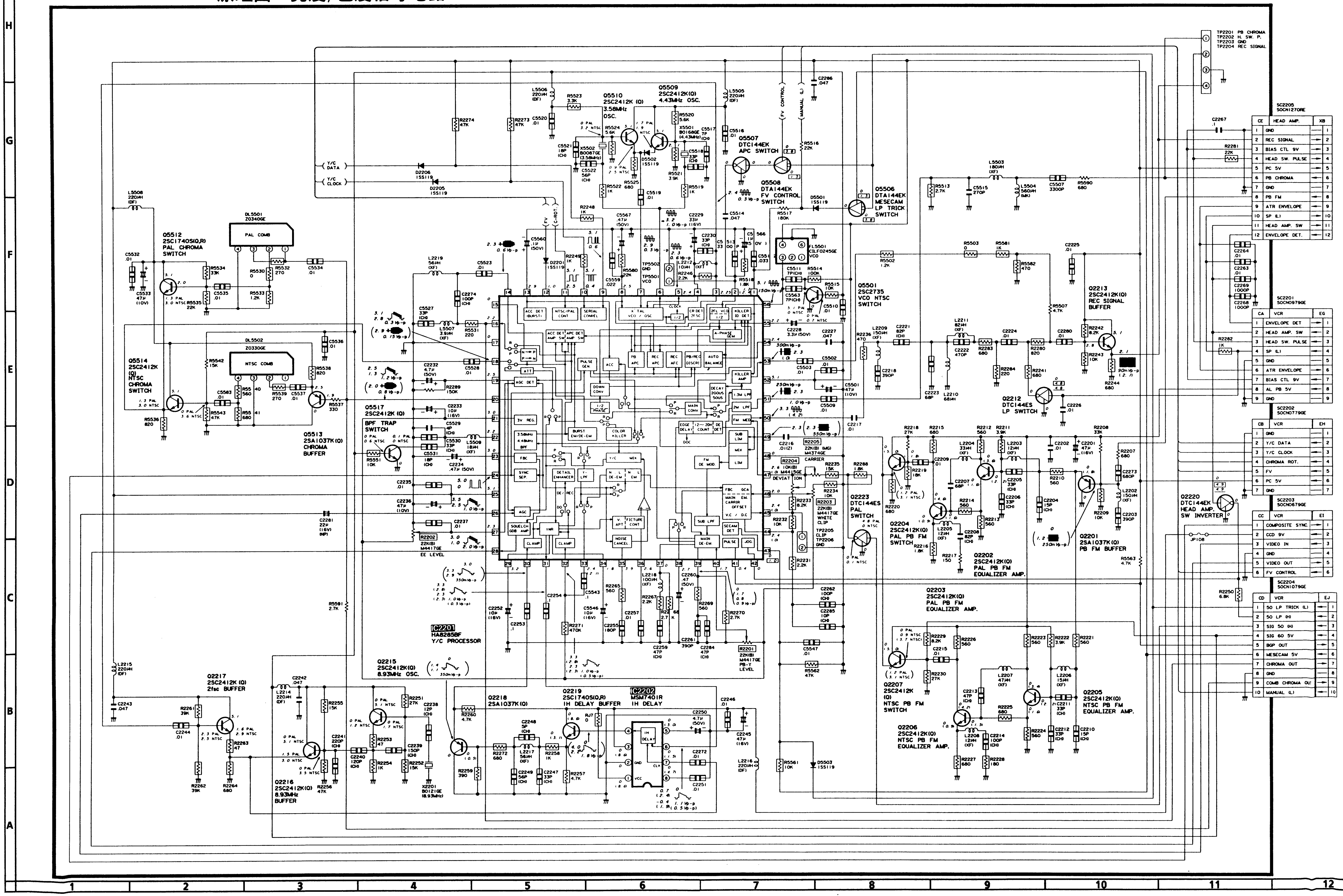
这里的电路原理图均为最初设计原图，与您的机器的电路原理图可能有不同之处。

WAVEFORMS

波形图

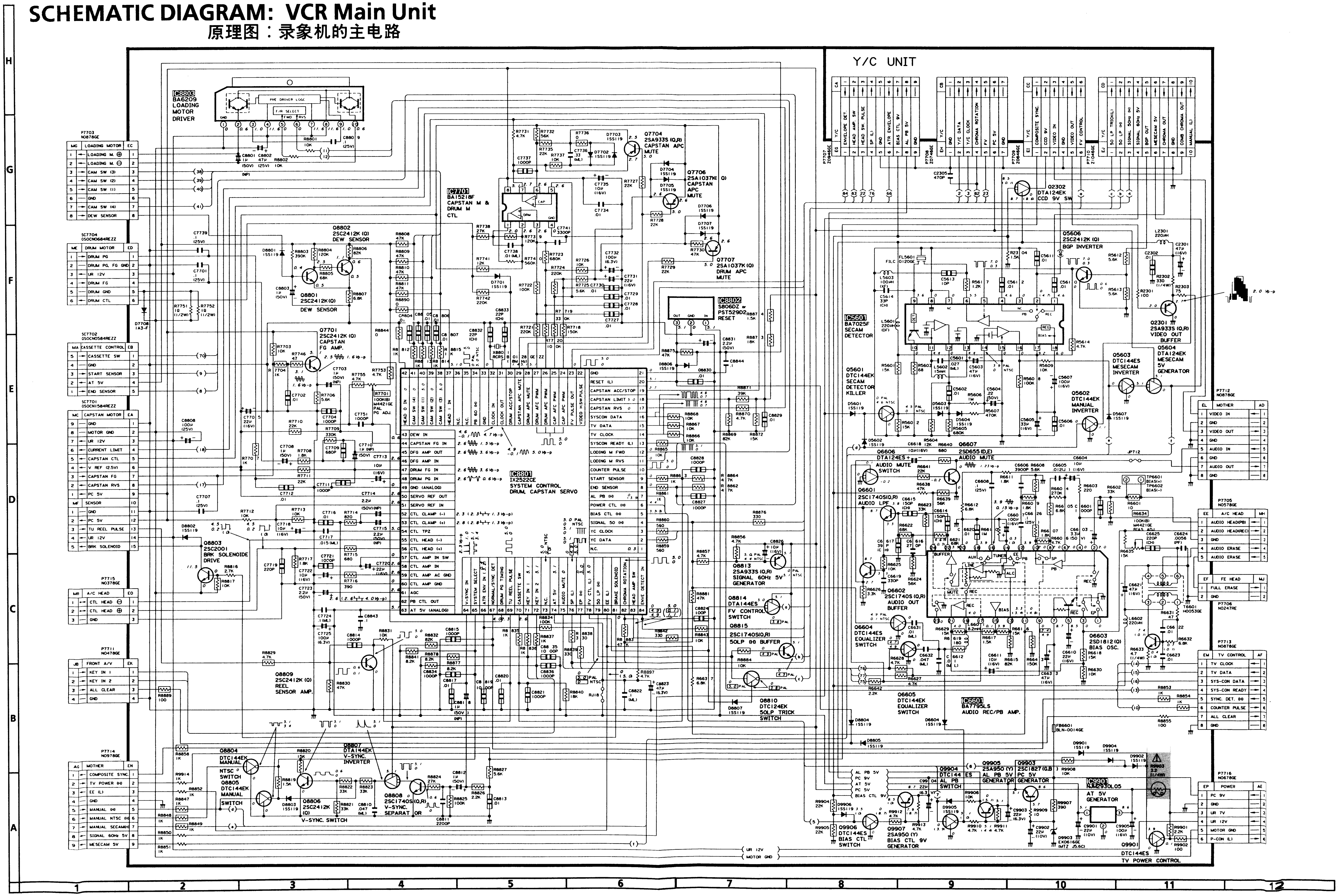

Y/C
1H
V: 1.0Vp-p
P In (26) of IC2201
REC/EE
Y/C
1H
V: 2.0Vp-p
P In (28) of IC2201
REC/EE
Y/C
1H
V: 300mVp-p
P In (32) of IC2201
REC/EE/PB
Y/C
1H
V: 800mVp-p
TP2205 (P In (45) of IC2201) REC/EE
Y/C
1H
V: 300mVp-p
P In (53) of IC2201
REC/EE
Y/C
1H
V: 100mVp-p
P In (51) of IC2201
PB
Y/C
1V
V: 400mVp-p
P In (49) of IC2201
PB
Y/C
H: 4.43MHz
V: 1.0Vp-p
P In (7) of IC2201
Y/C
1H
V: 5.0Vp-p
P In (24) of IC2201
COMPOSITE SYNC.
Y/C
1V
V: 90mVp-p
TP2204 (EMITTER of Q2204) REC
H/A
1V
V: 90mVp-p
Pin 2 of connector-XB
REC
H/A
2V
V: 4.0Vp-p
Head SW. Pulse
Pin 4 of connector-XB
REC/PB
Y/C
1V
V: 300mVp-p
TP2201
PB CHROMA
SYSTEM CONTROLLER SERVO
H: 8MHz
V: 5.0Vp-p
P In (31) of IC8801
REC/PB CLOCK
SERVO
2V
V: 0.7Vp-p
P In 1 of connector -ED REC/PB
DRUM PG
SERVO
2V
V: 0.6Vp-p
P In (48) of IC8801
REC/PB
DRUM PG
SERVO
H: 600Hz (PAL)
720Hz (NTSC)
V: 3.6Vp-p
P In (45) of IC8801
REC/PB
DRUM FG
SERVO
H: 760Hz (PAL SP)
1080Hz (NTSC SP)
V: 1.5Vp-p
P In (44) of IC8801
REC/PB
CAPSTAN FG
SERVO
2V
V: 4.0Vp-p
P In (62) of IC8801
PB CTL
SERVO
1V
V: 2.3Vp-p
P In (64) of IC8801
EE (REC)
V-SYNC
AUDIO
H: 70 ± 5kHz
V: 30mVp-p
TP6601 (+)
TP6602 (−)
REC
AUDIO
H: 1kHz
V: 100mVp-p
P In 5 of connector-EL
REC/EE/PB
AUDIO
H: 1kHz
V: 1.2Vp-p
P In 7 of connector-EL
REC/EE/PB
AUDIO
H: 70 ± 5kHz
V: 66Vp-p
P In 4 of connector-EE
REC

SCHEMATIC DIAGRAM: Y/C Unit
原理图：亮度/色度信号电路


IC2201
HA8285BF
Y/C PROCESSOR
IC2202
MSM7401R
1H DELAY
Q5510 2SC2412K (Q) 3.58MHz OSC.
Q5509 2SC2412K(Q) 4.43MHz OSC.
Q5507 DTC144EK APC SWITCH
Q5508 DTA144EK FV CONTROL SWITCH
Q5506 DTA144EK MESECAM LP TRICK SWITCH
Q5512 2SC1740S(Q,R) PAL CHROMA SWITCH
Q5514 2SC2412K (Q) NTSC CHROMA SWITCH
Q5513 2SA1037K(Q) CHROMA BUFFER
Q5517 2SC2412K (Q) BPF TRAP SWITCH
Q5501 2SC2735 VCO NTSC SWITCH
Q2213 2SC2412K(Q) REC SIGNAL BUFFER
Q2212 DTC144ES LP SWITCH
Q2223 DTC144ES PAL SWITCH
Q2204 2SC2412K(Q) PAL PB FM SWITCH
Q2202 2SC2412K(Q) PAL PB FM EQUALIZER AMP.
Q2201 2SA1037K(Q) PB FM BUFFER
Q2220 DTC144EK HEAD AMP. SW INVERTER
Q2203 2SC2412K(Q) PAL PB FM EQUALIZER AMP.
Q2207 2SC2412K (Q) NTSC PB FM SWITCH
Q2206 2SC2412K(Q) NTSC PB FM EQUALIZER AMP.
Q2205 2SC2412K(Q) NTSC PB FM EQUALIZER AMP.
Q2215 2SC2412K(Q) 8.93MHz OSC.
Q2217 2SC2412K (Q) 2fsc BUFFER
Q2216 2SC2412K(Q) 8.93MHz BUFFER
Q2218 2SA1037K(Q)
Q2219 2SC1740S(Q,R) 1H DELAY BUFFER
DL5501 Z0340GE PAL COMB
DL5502 Z0330GE NTSC COMB
FL5501 CILF0245GE VCO
R2202 22K(B) M4417GE EE LEVEL
R2201 22K(B) M4417GE PB-Y LEVEL
R2205 22K(B) M4374GE CARRIER
R2204 10K(B) M4415GE DEVIATION
R2203 22K(B) M4417GE WHITE CLIP
TP2205 CLIP
TP2206 GND
TP2201 PB CHROMA
TP2202 H. SW. P.
TP2203 GND
TP2204 REC SIGNAL
Y/C DATA
Y/C CLOCK
FV CONTROL
MANUAL (L)
SC2205 SOCN1270RE
CE HEAD AMP. XB
1 GND
2 REC SIGNAL
3 BIAS CTL 9V
4 HEAD SW. PULSE
5 PC 5V
6 PB CHROMA
7 GND
8 PB FM
9 ATR ENVELOPE
10 SP (L)
11 HEAD AMP. SW
12 ENVELOPE DET.
SC2201 SOCN0979GE
CA VCR EG
1 ENVELOPE DET
2 HEAD AMP. SW
3 HEAD SW. PULSE
4 SP (L)
5 GND
6 ATR ENVELOPE
7 BIAS CTL 9V
8 AL PB 5V
9 GND
SC2202 SOCN0779GE
CB VCR EH
1 GND
2 Y/C DATA
3 Y/C CLOCK
4 CHROMA ROT.
5 FV
6 PC 5V
7 GND
SC2203 SOCN0679GE
CC VCR EI
1 COMPOSITE SYNC.
2 CCD 9V
3 VIDEO IN
4 GND
5 VIDEO OUT
6 FV CONTROL
SC2204 SOCN1079GE
CD VCR EJ
1 50 LP TRICK (L)
2 50 LP (H)
3 SIG 50 (H)
4 SIG 60 5V
5 BGP OUT
6 MESECAM 5V
7 CHROMA OUT
8 GND
9 COMB CHROMA OUT
10 MANUAL (L)
JP108
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

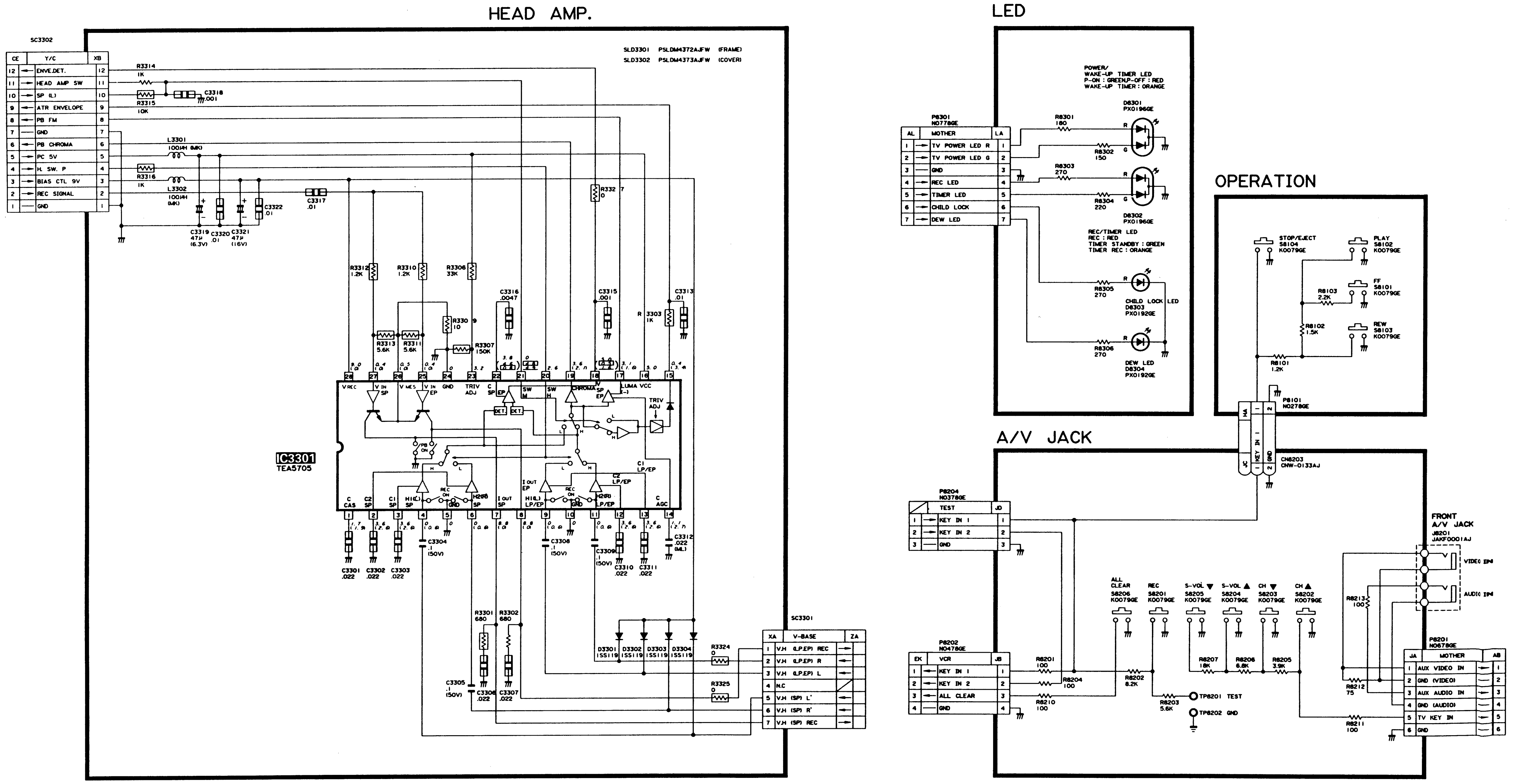
SCHEMATIC DIAGRAM: VCR Main Unit

原理图：录象机的主电路


Y/C UNIT
IC8803 BA6209 LOADING MOTOR DRIVER
IC7701 BA15218F CAPSTAN M & DRUM M CTL
IC8801 IX2522CE SYSTEM CONTROL DRUM, CAPSTAN SERVO
IC8802 S806DZ or PST529D2 RESET
IC5601 BA7025F SECAM DETECTOR
IC6601 BA7795LS AUDIO REC/PB AMP.
IC9901 NJM2930L05 AT 5V GENERATOR
Q8801 2SC2412K(Q) DEW SENSOR
Q8802 2SC2412K (Q) DEW SENSOR
Q7701 2SC2412K (Q) CAPSTAN FG AMP.
Q7704 2SA933S (Q,R) CAPSTAN APC MUTE
Q7706 2SA1037K(Q) CAPSTAN APC MUTE
Q7707 2SA1037K(Q) DRUM APC MUTE
Q8803 2SC2001 BRK SOLENOIDE DRIVE
Q8809 2SC2412K (Q) REEL SENSOR AMP.
Q8804 DTC144EK MANUAL NTSC SWITCH
Q8805 DTC144EK MANUAL SWITCH
Q8806 2SC2412K (Q) V-SYNC. SWITCH
Q8807 DTA144EK V-SYNC. INVERTER
Q8808 2SC1740S(Q,R) V-SYNC. SEPARAT OR
Q8813 2SA933S(Q,R) SIGNAL 60Hz 5V GENERATOR
Q8814 DTA144ES FV CONTROL SWITCH
Q8815 2SC1740S(Q,R) 50LP (H) BUFFER
Q8810 DTC124EK 50LP TRICK SWITCH
Q2302 DTA124EK CCD 9V SW
Q5606 2SC2412K (Q) 8GP INVERTER
Q2301 2SA933S (Q,R) VIDEO OUT BUFFER
Q5601 DTC144EK SECAM DETECTOR KILLER
Q5603 DTC144ES MESECAM INVERTER
Q5604 DTA124EK MESECAM 5V GENERATOR
Q5602 DTC144EK MANUAL INVERTER
Q6606 DTA124ES AUDIO MUTE SWITCH
Q6607 2SD655 (D,E) AUDIO MUTE
Q6601 2SC1740S(Q,R) AUDIO LPF
Q6602 2SC1740S (Q,R) AUDIO OUT BUFFER
Q6604 DTC144ES EQUALIZER SWITCH
Q6605 DTC144EK EQUALIZER SWITCH
Q6603 2SD1812(Q) BIAS OSC.
Q9904 DTC144ES AL PB SWITCH
Q9905 2SA950 (Y) AL PB 5V GENERATOR
Q9903 2SC1827 (Q,B) PC 5V GENERATOR
Q9906 DTC144ES BIAS CTL SWITCH
Q9907 2SA950 (Y) BIAS CTL 9V GENERATOR
Q9901 DTC144ES TV POWER CONTROL
P7703 LOADING MOTOR
P7704 DRUM MOTOR
P7702 CASSETTE CONTROL
P7701 CAPSTAN MOTOR
P7715 A/C HEAD
P7711 FRONT A/V
P7714 MOTHER
P7712 MOTHER
P7705 A/C HEAD
FE HEAD
P7713 TV CONTROL
P7716 POWER

SCHEMATIC DIAGRAM: Head Amp, LED, Operation, A/V Jack Unit

原理图：前置放大器、LED、操作控制器及声象插孔电路

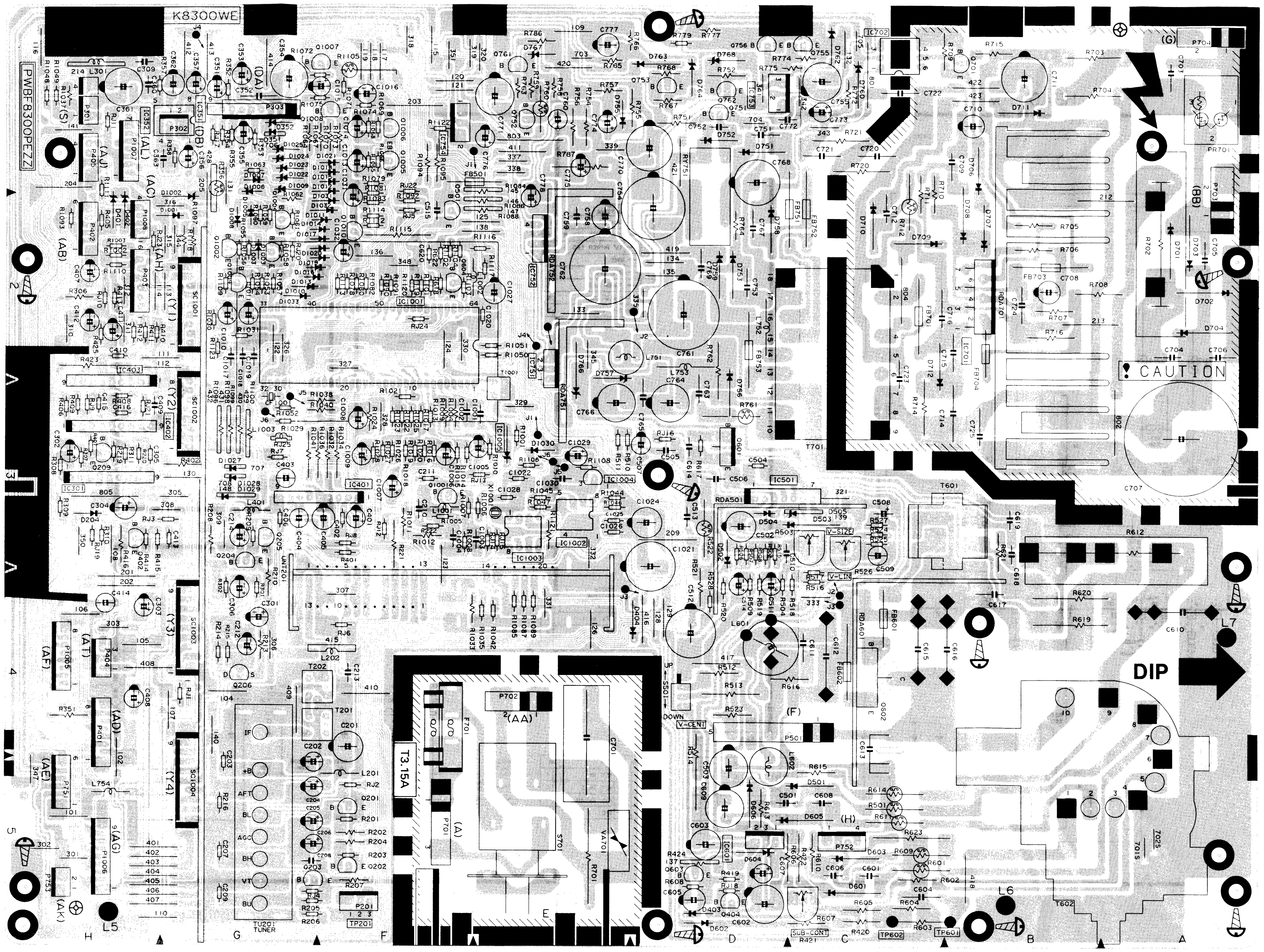

HEAD AMP.
LED
OPERATION
A/V JACK
SC3302
SLD3301 PSLDM4372AJFW (FRAME)
SLD3302 PSLDM4373AJFW (COVER)
IC3301
TEA5705
SC3301
ENVE.DET.
HEAD AMP SW
SP (L)
ATR ENVELOPE
PB FM
GND
PB CHROMA
PC 5V
H. SW. P
BIAS CTL 9V
REC SIGNAL
V-BASE
V.H (LP.EP) REC
V.H (LP.EP) R
V.H (LP.EP) L
N.C
V.H (SP) L'
V.H (SP) R'
V.H (SP) REC
P8301
NO778GE
MOTHER
TV POWER LED R
TV POWER LED G
REC LED
TIMER LED
CHILD LOCK
DEW LED
POWER/ WAKE-UP TIMER LED
P-ON : GREEN,P-OFF : RED
WAKE-UP TIMER : ORANGE
D8301 PX0196GE
D8302 PX0196GE
REC/TIMER LED
REC : RED
TIMER STANDBY : GREEN
TIMER REC : ORANGE
CHILD LOCK LED
D8303 PX0192GE
DEW LED
D8304 PX0192GE
STOP/EJECT S8104 K0079GE
PLAY S8102 K0079GE
FF S8101 K0079GE
REW S8103 K0079GE
P8101 NO278GE
CN8203 CNW-0133AJ
P8204 NO378GE
TEST
KEY IN 1
KEY IN 2
GND
P8202 NO478GE
VCR
ALL CLEAR
ALL CLEAR S8206 K0079GE
REC S8201 K0079GE
S-VOL ▼ S8205 K0079GE
S-VOL ▲ S8204 K0079GE
CH ▼ S8203 K0079GE
CH ▲ S8202 K0079GE
TP8201 TEST
TP8202 GND
FRONT A/V JACK
J8201 JAKF0001AJ
VIDEO IN
AUDIO IN
P8201 NO678GE
AUX VIDEO IN
GND (VIDEO)
AUX AUDIO IN
GND (AUDIO)
TV KEY IN
D3301 1SS119
D3302 1SS119
D3303 1SS119
D3304 1SS119
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

PRINTED WIRING BOARD ASSEMBLIES

各印刷电路板图

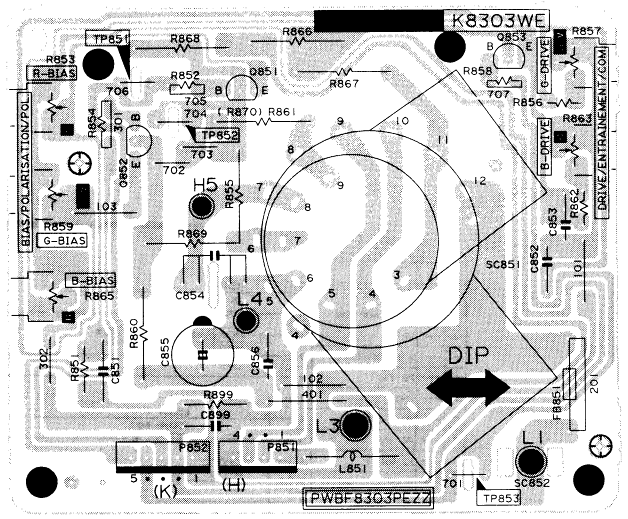
■ TV SECTION

■电视机部分


K8300WE
PWBF8300PEZZ
CAUTION
DIP
T3.15A
TU201
TUNER
IF
AFT
AGC
SUB-CONT
V-SIZE
V-LIN
V-CENT
UP
DOWN
L5
L6
L7
(DA)
(DB)
(AA)
(BB)
(G)
(H)
(F)
(A)
(AJ)
(AL)
(AC)
(AB)
(AH)
(Y1)
(Y2)
(Y3)
(Y4)
(AT)
(AF)
(AD)
(AE)
(AG)
(AK)
IC702
IC1001
IC1002
IC1003
IC1004
IC501
IC601
T701
T601
T602

PWB-A: Mother Unit (Wiring Side)

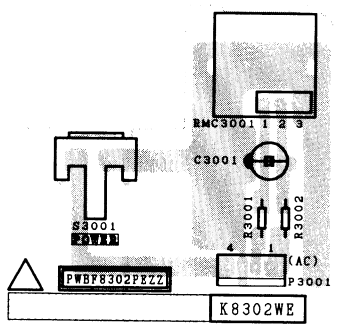
母体装置印刷电路板（线路贴置侧）


K8303WE
PWBF8303PEZZ
TP851
TP852
TP853
R-BIAS
G-BIAS
B-BIAS
G-DRIVE
B-DRIVE
DRIVE/ENTRAINEMENT/COM
BIAS/POLARISATION/POL
H5
L4
L3
L1
DIP
(K)
(H)

PWB-B: CRT Socket Unit (Wiring Side)

CRT管座装置印刷电路板

（线路贴置侧）


RMC3001
C3001
R3001
R3002
S3001
P3001
(AC)
PWBF8302PEZZ
K8302WE

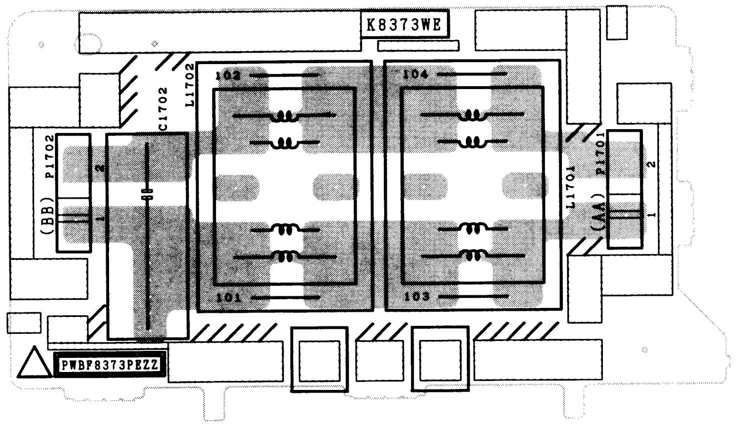
PWB-D: Power SW, R/C Unit (Wiring Side)

电源开关、遥控器印刷电路板

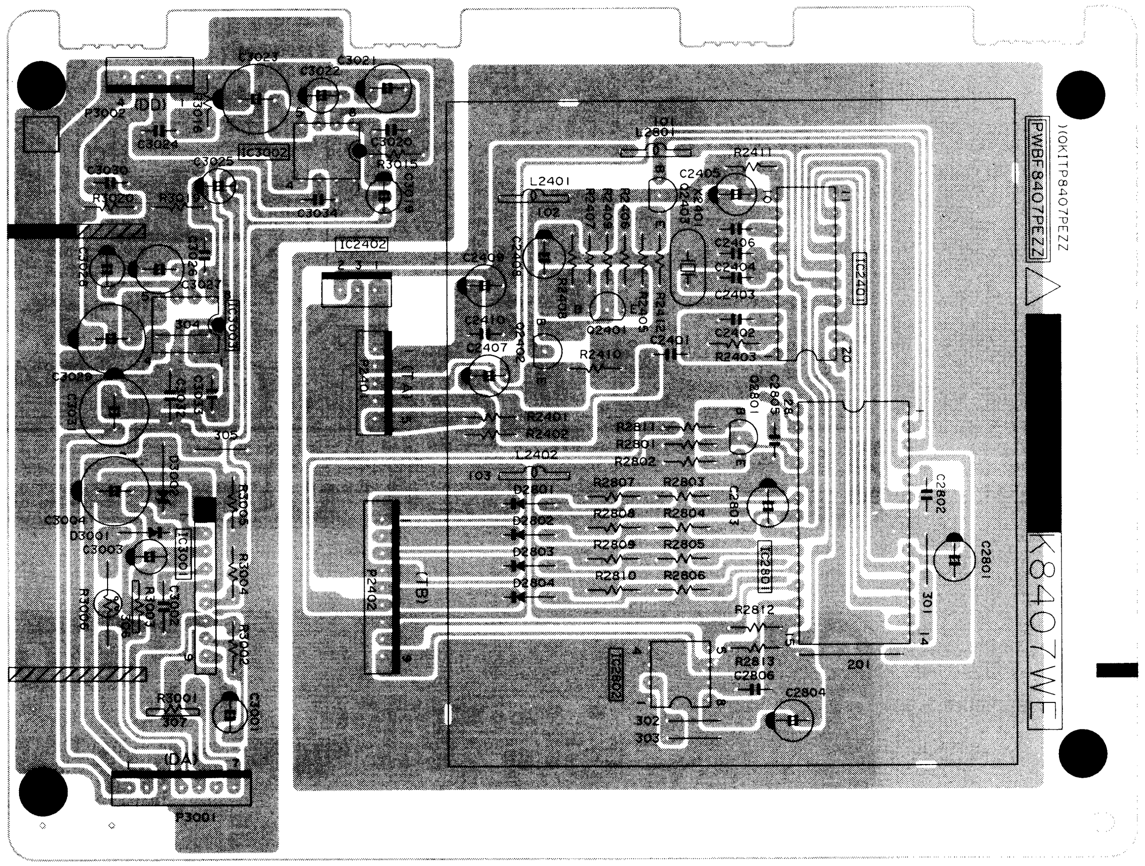
（线路贴置侧）

■ TV SECTION

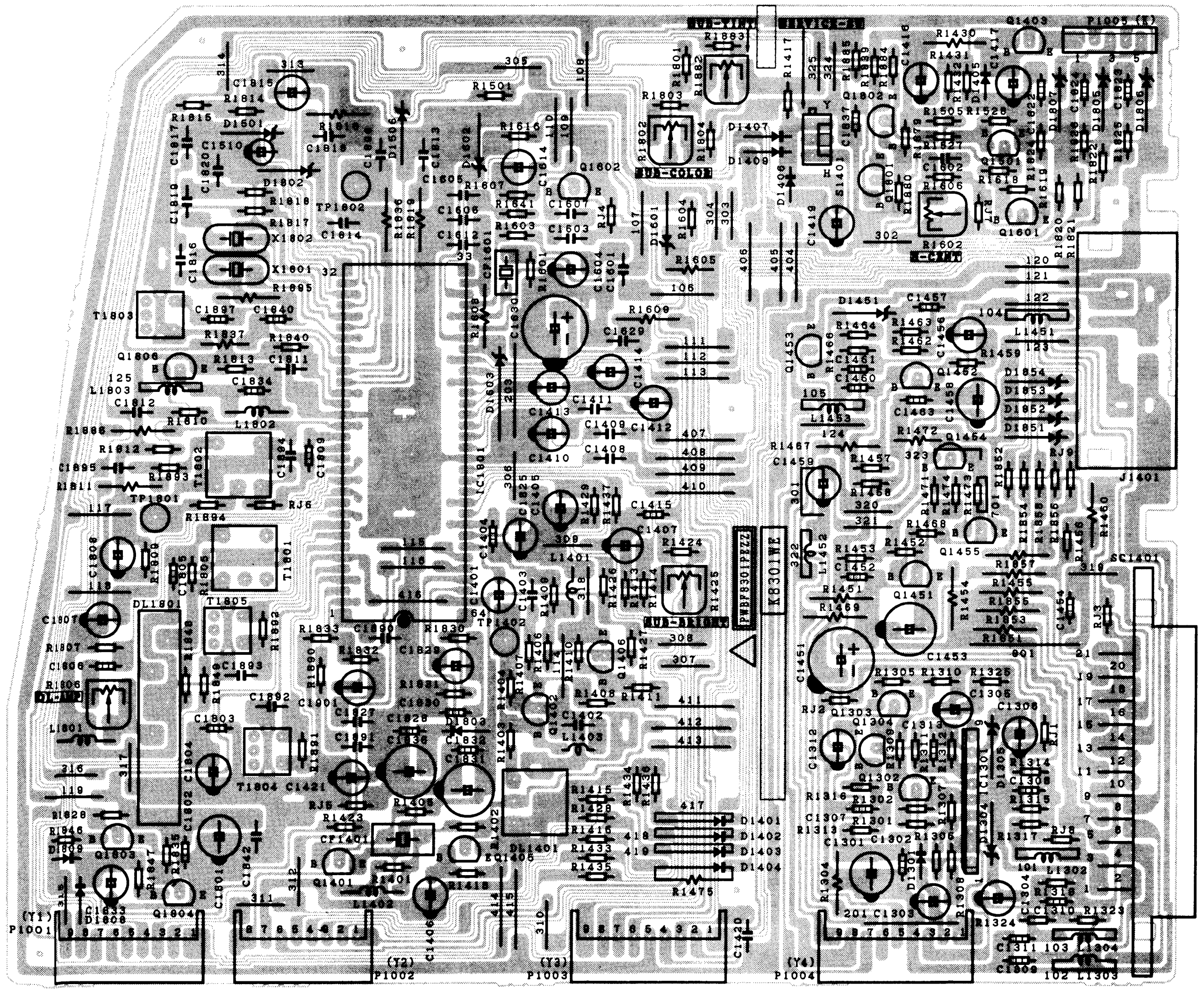
■电视机部分


K8373WE
PWBF8373PEZZ
L1702
C1702
P1702
(BB)
L1701
P1701
(AA)
101
102
103
104

PWB-F: Line Filter Unit (Wiring Side)
线性滤波器印刷电路板(线路贴置侧)

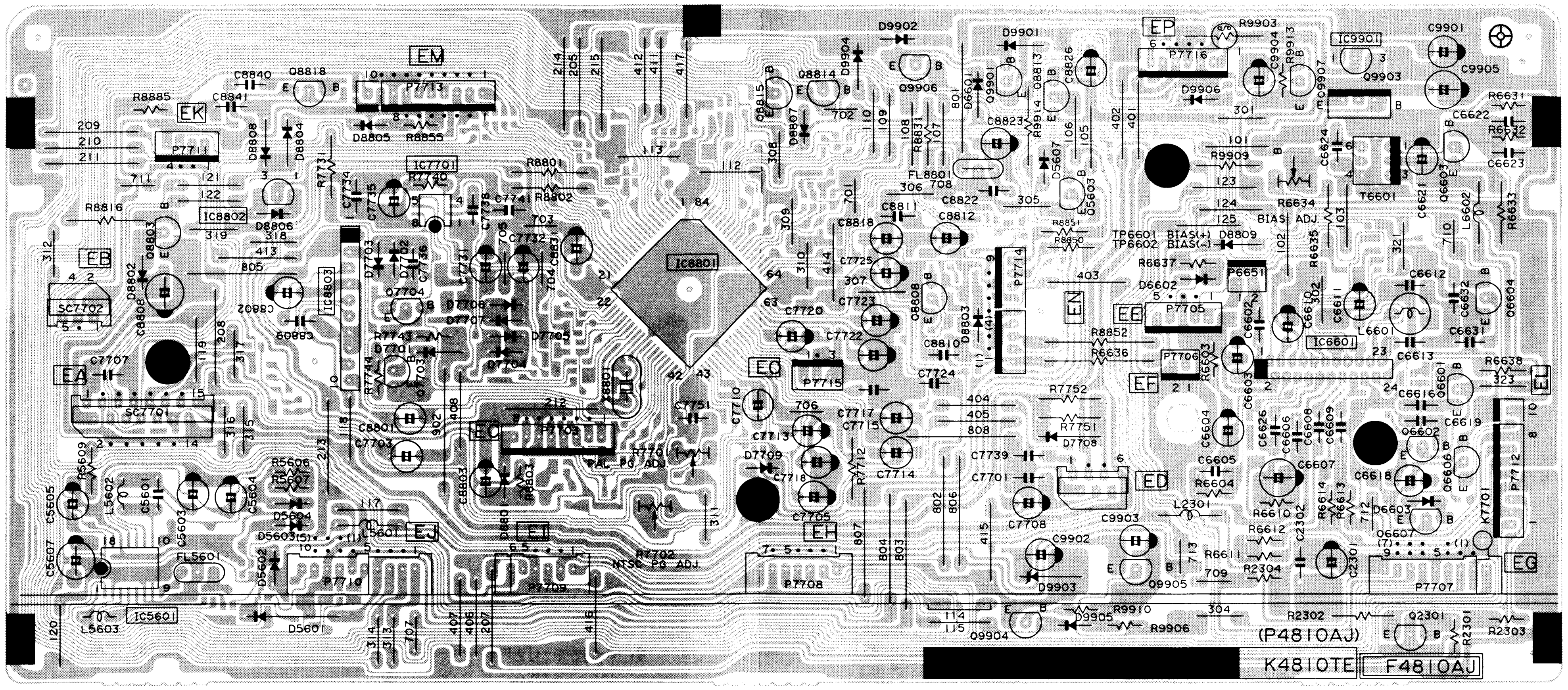

K8407WE
PWBF8407PEZZ
IC2401
IC2402
IC3001
IC3002
IC2801
P3001
P3002

PWB-T: Sound Output Unit (Wiring Side)
(Only for VT-2118M)
音频信号输出装置印刷电路板(线路贴置侧)
(VT-2118M型)

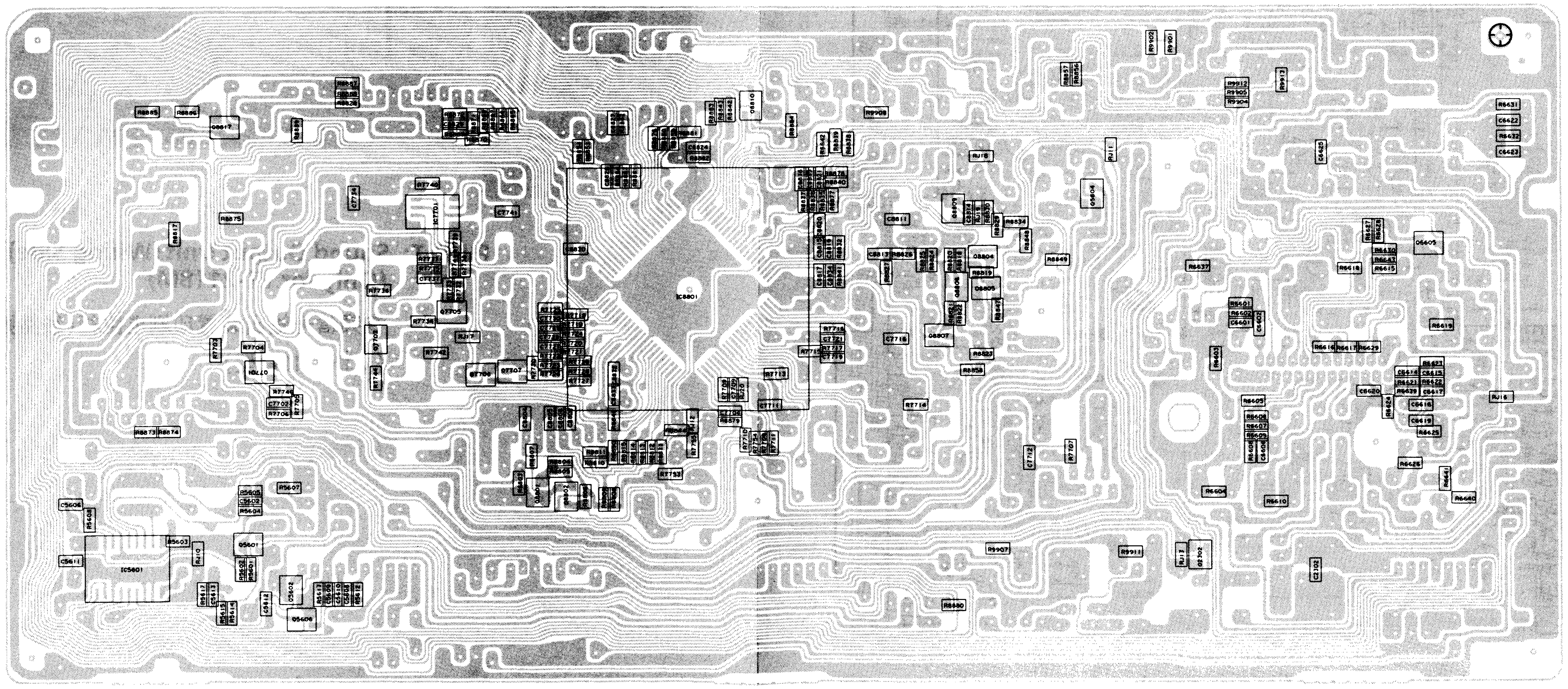

K8301WE
PWBF8301PEZZ
P1001
P1002
P1003
P1004
P1005
J1401
SC1401

PWB-Y: VCJ, A/V Unit (Wiring Side)
VCJ、声象装置印刷电路板(线路贴置侧)

■ VCR SECTION
■录象机部分


IC8801
IC7701
IC8802
IC8803
IC6601
IC9901
IC5601
SC7701
SC7702
P7711
P7713
P7716
P7714
P7705
P7706
P7715
P7703
P7710
P7709
P7708
P7707
P7712
P6651
T6601
BIAS ADJ.
NTSC PG ADJ.
PAL PG ADJ.
(P4810AJ)
K4810TE
F4810AJ

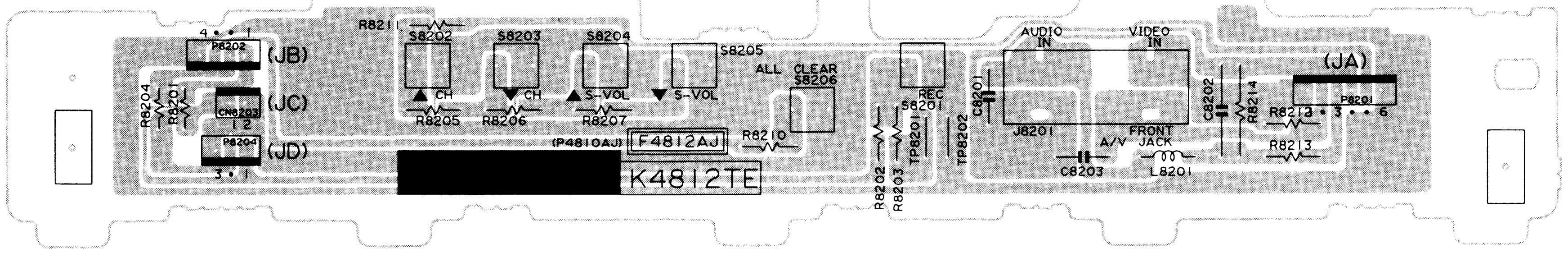
(Wiring Side) （线路贴置侧）


IC8801
IC5601

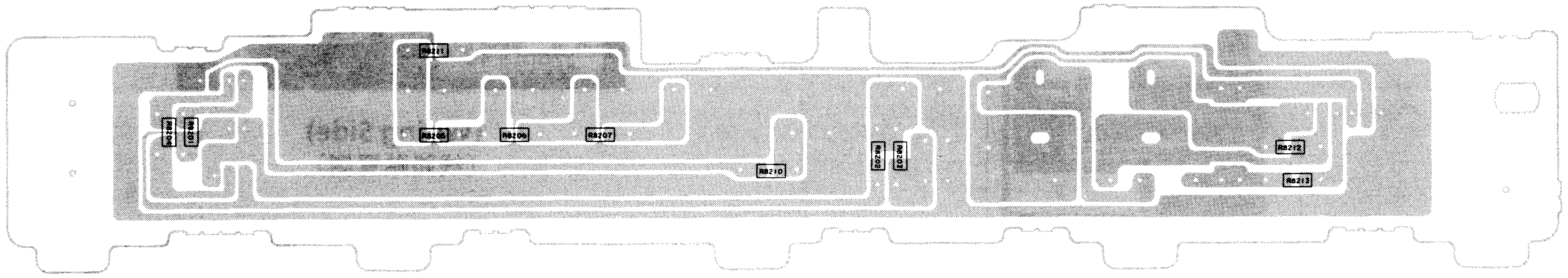
PWB-E: Main Unit
录象机的主电路装置

(Chip Parts Side) （部件装备侧）

■ VCR SECTION
■录象机部分

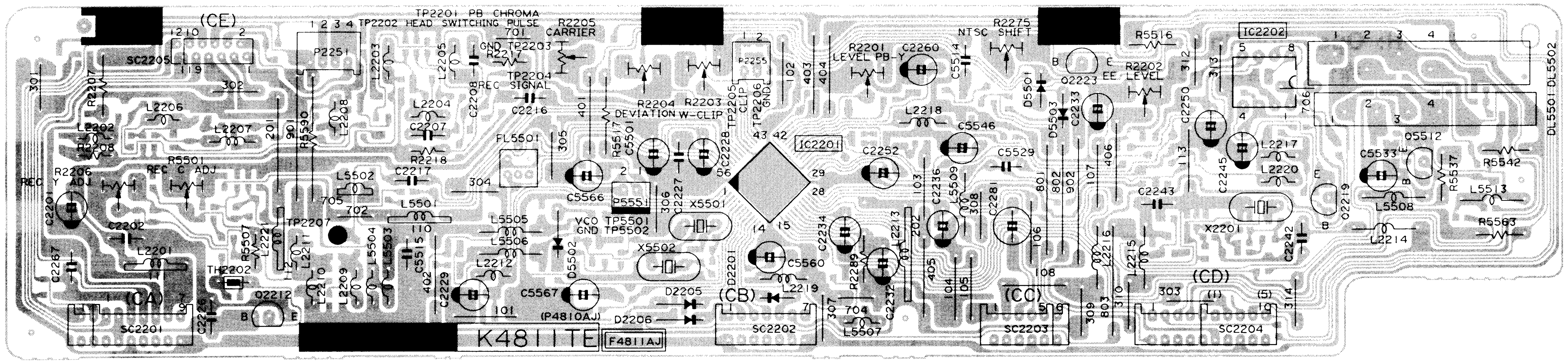

R8211
S8202
S8203
S8204
S8205
P8202
(JB)
CN8203
(JC)
P8204
(JD)
R8204
R8201
▲ CH
▼ CH
▲ S-VOL
▼ S-VOL
R8205
R8206
R8207
ALL CLEAR
S8206
(P4810AJ)
F4812AJ
R8210
K4812TE
REC
S8201
R8202
R8203
TP8201
TP8202
C8201
AUDIO IN
VIDEO IN
J8201
FRONT A/V JACK
C8203
L8201
C8202
R8214
(JA)
P8201
R8212
R8213

(Wiring Side) （线路贴置侧）

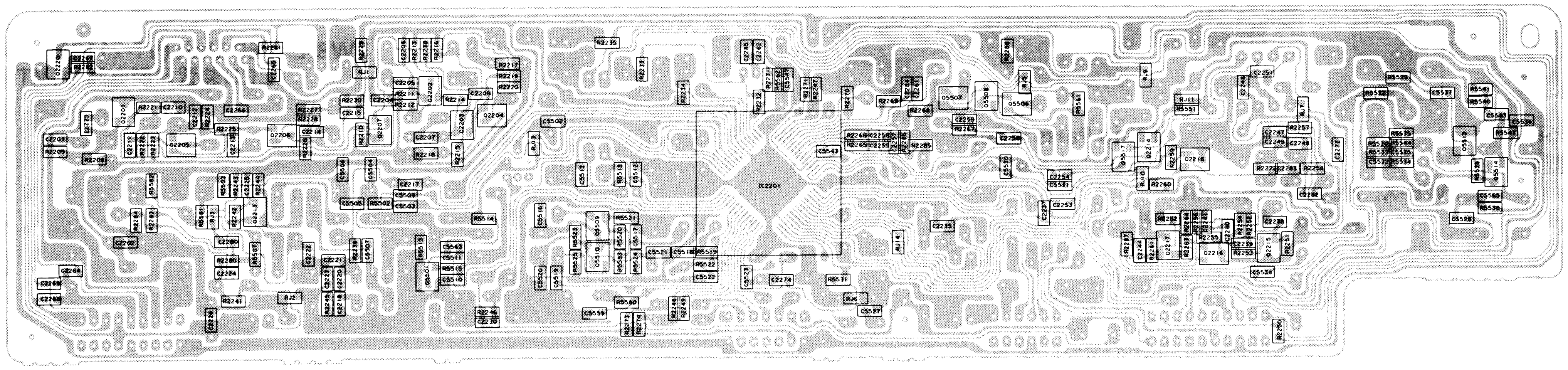


PWB-J: A/V Jack Unit
声象（A/V）插孔装置印刷电路板

(Chip Parts Side) （部件装备侧）


(CE)
SC2205
TP2201 PB CHROMA
TP2202 HEAD SWITCHING PULSE
R2205 CARRIER
TP2203 REC SIGNAL
TP2204
P2251
P2255
R2201 LEVEL PB-Y
R2275 NTSC SHIFT
R5516
IC2202
R2202 EE LEVEL
Q2223
R2204 DEVIATION
R2203 W-CLIP
TP2205 CLIP
TP2206 GND
IC2201
X5501
X5502
X2201
VCO GND
TP5501
TP5502
FL5501
R2206 Y ADJ
REC C ADJ
R5501
REC
Q5512
DL5501
DL5502
TH2202
Q2212
(CA)
SC2201
K4811TE
(P4810AJ)
F4811AJ
(CB)
SC2202
(CC)
SC2203
(CD)
SC2204

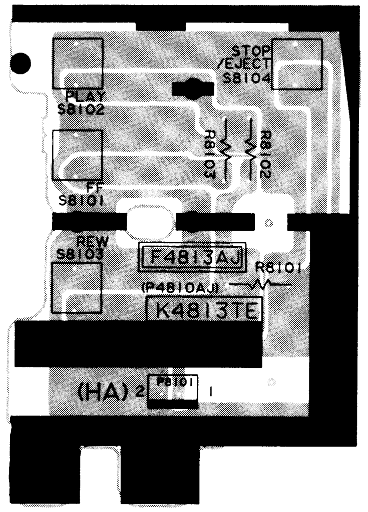
(Wiring Side) （线路贴置侧）



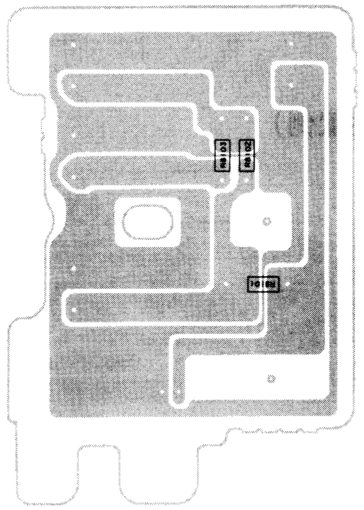
PWB-C: Y/C Unit
亮度/色度（Y/C）信号装置印刷电路板

(Chip Parts Side) （部件装备侧）

■ VCR SECTION

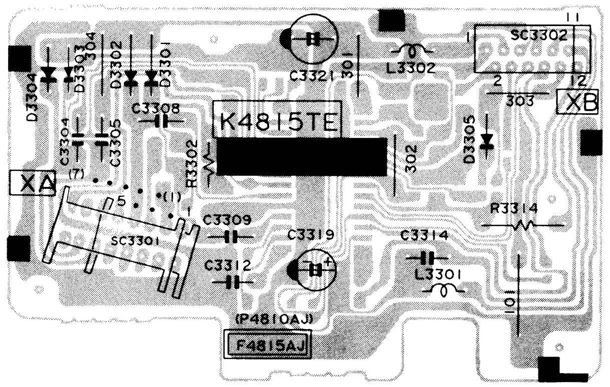

STOP
/EJECT
S8104
PLAY
S8102
R8103
R8102
FF
S8101
REW
S8103
F4813AJ
R8101
(P4810AJ)
K4813TE
(HA)
P8101

(Wiring Side)
（线路贴置侧）

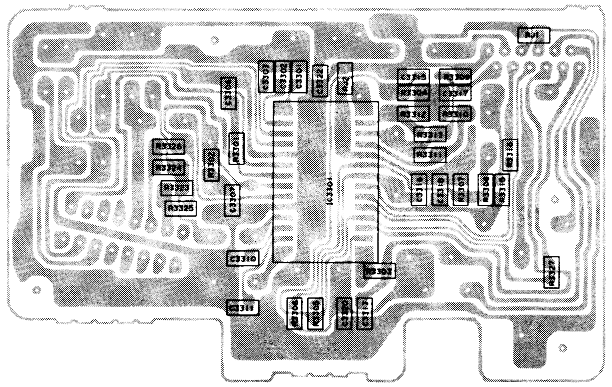


(Chip Parts Side)
（部件装备侧）

PWB-H: Operation Unit
操作控制器印刷电路板

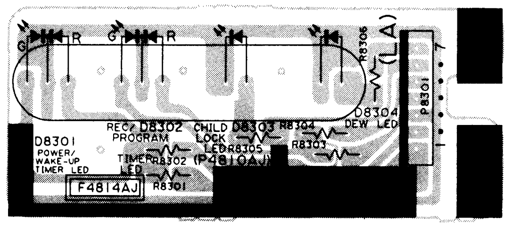

SC3302
C3321
L3302
D3304
D3303
D3302
D3301
C3308
K4815TE
303
XB
C3304
C3305
R3302
302
D3305
XA
SC3301
C3309
C3319
C3314
R3314
C3312
L3301
(P4810AJ)
F4815AJ
301
101

(Wiring Side)
（线路贴置侧）

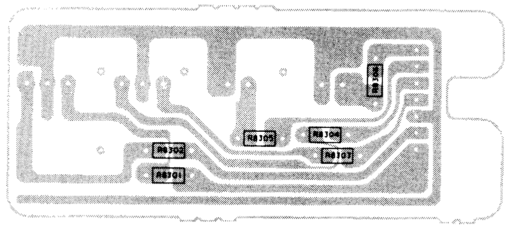


(Chip Parts Side)
（部件装备侧）

PWB-X: Head Amp. Unit
前置放大器印刷电路板

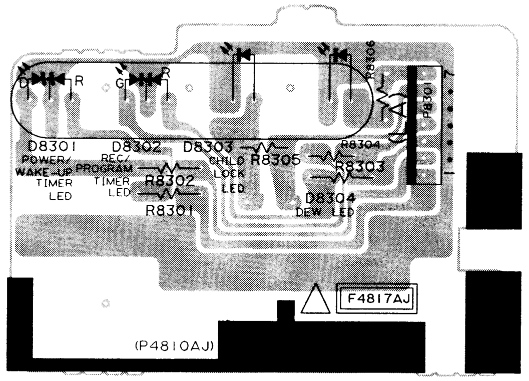

(LA)
R8306
D8301
POWER/
WAKE-UP
TIMER LED
REC/ D8302
PROGRAM
TIMER
LED
CHILD D8303
LOCK
LED
R8305
R8304
R8303
D8304
DEW LED
R8302
R8301
P8301
F4814AJ
(P4810AJ)

(Wiring Side)
（线路贴置侧）



(Chip Parts Side)
（部件装备侧）

PWB-L: LED Unit (VT-1418M)
LED装置印刷电路板(VT-1418M型)


R8306
D8301
POWER/
WAKE-UP
TIMER
LED
D8302
REC/
PROGRAM
TIMER
LED
D8303
CHILD
LOCK
LED
R8305
R8304
R8303
R8302
R8301
D8304
DEW LED
F4817AJ
(P4810AJ)

(Wiring Side)
（线路贴置侧）

PWB-L: LED Unit (VT-2118M)
LED装置印刷电路板(VT-2118M型)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by "⚠" in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

MARK ★: SPARE PARTS-DELIVERY SECTION.

更换零件表

更换零件

本维修说明书对具有特别安全要求的零件均用标记加以识别：在此更换零件表中，具有特别安全要求的电路元件均用⚠标记以便注意识别。更换零件时，为了用户的安全以及电视机原有的工作性能，务请使用夏普规定零件。否则，可能有导致触电、火灾或其他不测事故发生的可能。

更换零件的订货方法

为了能迅速而确实地接受订货、以及正确无误地按时交货，在订货时请将下列各项明确告知。

1．型号
2．参考编号
3．零件编号
4．零件名称
5．代号
6．数量

附★记号为备用部件的交货部门

ELECTRICAL PARTS

PRINTED WIRING BOARD ASSEMBLIES
(*NOT REPLACEMENT ITEM*)
Model VT-1418M

TV Section

Ref. No.	Part No.	★	Description	Code
PWB-A	DUNTK8300WEV1	–	Mother Unit	—
PWB-B	DUNTK8303WEV1	–	CRT Socket Unit	—
PWB-D	DUNTK8302WEV1	–	Power SW, R/C Unit	—
PWB-F	DUNTK8373WEV1	–	Line Filter Unit	—
PWB-Y	DUNTK8301WEV1	–	VCJ, A/V Unit	—

VCR Section

Ref. No.	Part No.	★	Description	Code
PWB-C	DUNTK4811TEV1	–	Y/C Unit	—
PWB-E	DUNTK4810TEV1	–	Main Unit	—
PWB-H	DUNTK4813TEV0	–	Operation Unit	—
PWB-J	DUNTK4812TEV0	–	A/V Jack Unit	—
PWB-L	DUNTK4814TEV0	–	LED Unit	—
PWB-X	DUNTK4815TEV1	–	Head Amp. Unit	—

—— End of P.W.B. ASSEMBLIES (VT-1418M) ——

PRINTED WIRING BOARD ASSEMBLIES
(*NOT REPLACEMENT ITEM*)
Model VT-2118M

TV Section

Ref. No.	Part No.	★	Description	Code
PWB-A	DUNTK8300WEV4	–	Mother Unit	—
PWB-B	DUNTK8303WEV3	–	CRT Socket Unit	—
PWB-D	DUNTK8302WEV3	–	Power SW, R/C Unit	—
PWB-F	DUNTK8373WEV3	–	Line Filter Unit	—
PWB-Y	DUNTK8301WEV3	–	VCJ, A/V Unit	—
PWB-T	DUNTK8407WEV0	–	Sound Output Unit	—

VCR Section

Ref. No.	Part No.	★	Description	Code
PWB-C	DUNTK4811TEV2	–	Y/C Unit	—
PWB-E	DUNTK4810TEV2	–	Main Unit	—
PWB-H	DUNTK4813TEV0	–	Operation Unit	—
PWB-J	DUNTK4812TEV0	–	A/V Jack Unit	—
PWB-L	DUNTK4817TEV0	–	LED Unit	—
PWB-X	DUNTK4815TEV1	–	Head Amp. Unit	—

—— End of P.W.B. ASSEMBLIES (VT-2118M) ——

PICTURE TUBE

MODEL VT-1418M

Ref. No.	Part No.	★	Description	Code
⚠ V801	VB370BVBK1U-S	R	CRT, 37cm (14")	BX
⚠ DY601	RCiLH0057PEZZ	R	Deflection Yoke	BB
⚠ L799	RCiLG0031PEZZ	R	Degaussing Coil	AN
	PMAGF3006CEZZ	J	Purity Magnet	AK
	PSPAG0004PEZZ	R	Wedge (Gum), Yoke Positioning (3 used)	AB

MODEL VT-2118M

Ref. No.	Part No.	★	Description	Code
⚠ V801	VB51JFC61X/*P	J	CRT, 51cm (21")	CX
⚠ DY601	RCiLH1576CEZZ	J	Deflection Yoke	BD
⚠ L799	RCiLG0364CEZZ	J	Degaussing Coil	AV
	PMAGF3003CEZZ	J	Purity Magnet	AK
	PSPAG0003PEZZ	R	Wedge (Gum), Yoke Positioning (3 used)	AD

—— End of PICTURE TUBE ——

PWB-A DUNTK8300WEV1/V4 MOTHER UNIT

ASSEMBLY UNITS

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

Ref. No.	Part No.	★	Description	Code
⚠ TU201	VTUVTSS6S2D//	J	Tuner, VHF/UHF	BE
UNT201	RiFU-0017CEZZ	J	IF-Pack Unit	BE

INTEGRATED CIRCUITS

Ref. No.	Part No.	★	Description	Code
IC301	VHiTA7348P/-1	J	Audio Switch	AK
IC351	RH-iX0241CEZZ	J	LA1362, Audio ATT (VT-1418M)	AF
IC352	VHiTDA7233/-1	J	Audio Output (VT-1418M)	AF
IC401	VHiTA7348P/-1	J	System Switch	AK
IC402	VHiTA7348P/-1	J	Video Switch	AK
IC403	VHiNJM2220S-1	J	Sync. Separator	AG
IC501	RH-iX0640CEZZ	J	LA7830, Vertical Output	AK
IC601	RH-iX0452CEZZ	J	TA78012AP, 12V Reg.	AH
⚠ IC701	VHiSTRM6523-1	J	Power Control	BA
⚠ IC702	RH-FX0012CEZZ	J	PC113, Photo Coupler	AF
IC751	VHiTA7812S/-1	J	12V Regulator	AD
IC752	VHIPQ30RV11-1	J	9V Regulator	AF

INTEGRATED CIRCUITS (Continued)

Ref. No.	Part No.	★	Description	Code
IC753	VHiSE120N//-1	J	Error Detector	AG
IC754	VHiTA7805S/-1	J	5V Regulator	AD
IC1001	RH-iX2532CEZZ	R	Timer Control	BG
IC1002	VHiX24C02//-1	J	E^2 PROM	AN
IC1003	RH-iX2444CEZZ	J	Clock	AW
IC1004	VHiPST529D2-1	J	Reset Switch	AD
IC1005	RH-iX0249CEZZ	J	33V Regulator	AE

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q201	VS2SA950-Y/1E	J	2SA950-Y, Band Sw. B_L	AD
Q202	VS2SA950-Y/1E	J	2SA950-Y, Band Sw. B_H	AD
Q203	VS2SA950-Y/1E	J	2SA950-Y, Band Sw. B_U	AD
Q204	VSDTC144ES/-1	J	DTC144ES	AB
Q205	VS2SC1815GW-1	J	2SC1815(G)	AB
Q206	VS2SK304CD/-1	J	2SK304CD, AFT Sw.	AC
Q402	VS2SC1815GW-1	J	2SC1815(G), Video Amp.	AB
Q404	VS2SA1015Y/1E	J	2SA1015(Y), ABL (VT-1418M)	AC
Q501	VS2SC1815GW-1	J	2SC1815(G), V-Sync. Inv.	AB
Q601	VS2SC3620//1E	J	2SC3620, H-Drive	AE
⚠ Q602	VS2SD1554//1E	J	2SD1554, H-Output (VT-1418M)	AL
⚠ Q602	VS2SD1555//1E	J	2SD1555, H-Output (VT-2118M)	AP
Q603	VS2SA1015Y/1E	J	2SA1015(Y), Protector	AC
Q604	VS2SC1815GW-1	J	2SC1815(G), H-Sync. Inv.	AB
⚠ Q701	VS2SC1815GW-1	J	2SC1815(G), Error Amp.	AB
Q751	VS2SC1815GW-1	J	2SC1815(G), Relay Sw.	AB
Q752	VS2SC3279N/-1	J	2SC3279N, 33V Reg.	AC
Q753	VS2SC1815GW-1	J	2SC1815(G), Protector	AB
Q755	VS2SC1815GW-1	J	2SC1815(G), Protector	AB
Q756	VS2SC1815GW-1	J	2SC1815(G), Protector	AB
Q761	VS2SC1815GW-1	J	2SC1815(G), 33V Reg.	AB
Q762	VS2SC3279N/-1	J	2SC3279N, H-Vcc Reg.	AC
Q1001	VS2SC383-WT-1	J	2SC383, V_T Amp.	AE
Q1002	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1003	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1004	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1005	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1006	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1007	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1008	VS2SA1015Y/1E	J	2SA1015(Y), LED Drive	AC
Q1009	VS2SA1015Y/1E	J	2SA1015(Y), Power	AC
Q1010	VS2SC1815GW-1	J	2SC1815(G), Buffer	AB

PWB-A DUNTK8300WEV1/V4 MOTHER UNIT (Continued)

DIODES

Ref. No.	Part No.	★	Description	Code
D203	RH-EX0400CEZZ	J	Zener Diode	AC
D204	VHD1SS119//1E	J	1SS119	AA
D351	VHD1SS119//1E	J	1SS119 (VT-1418M)	AA
D352	RH-EX0315CEZZ	J	Zener Diode(VT-1418M)	AA
D401	RH-EX0168GEZZ	J	Zener Diode	AA
D402	RH-EX0168GEZZ	J	Zener Diode	AA
D403	VHD1SS119//1E	J	1SS119 (VT-1418M)	AA
D404	VHD1SS119//1E	J	1SS119	AA
D501	RH-DX0127CEZZ	J		AC
D502	VHD1SS119//1E	J	1SS119	AA
D503	RH-DX0055TAZZ	J		AD
D504	VHD1SS119//1E	J	1SS119 (VT-1418M)	AA
D505	RH-EX0298CEZZ	J	Zener Diode(VT-1418M)	AA
D601	RH-DX0079TAZZ	J		AE
D602	VHD1SS119//1E	J	1SS119	AA
D603	RH-DX0110CEZZ	J		AB
D604	RH-EX0051CEZZ	J	Zener Diode	AB
D605	RH-DX0073CEZZ	J		AD
D606	RH-DX0110CEZZ	J		AB
⚠ D701	RH-DX0114CEZZ	J		AD
⚠ D702	RH-DX0114CEZZ	J		AD
⚠ D703	RH-DX0114CEZZ	J		AD
⚠ D704	RH-DX0114CEZZ	J		AD
⚠ D706	RH-DX0130CEZZ	J		AE
⚠ D707	RH-DX0130CEZZ	J		AE
⚠ D708	RH-DX0130CEZZ	J		AE
⚠ D709	RH-DX0130CEZZ	J		AE
⚠ D710	RH-DX0130CEZZ	J		AE
⚠ D711	RH-DX0130CEZZ	J		AE
⚠ D712	RH-DX0164CEZZ	J		AC
D751	RH-DX0226CEZZ	J		AC
D752	VHD1SS119//1E	J	1SS119	AA
D753	RH-DX0224CEZZ	J		AB
D755	VHD1SS119//1E	J	1SS119	AA
D756	RH-DX0224CEZZ	J		AB
D757	RH-EX0217CEZZ	J	Zener Diode	AB
D758	RH-DX0224CEZZ	J		AB
D759	RH-DX0224CEZZ	J		AB
D762	RH-EX0019GEZZ	J	Zener Diode	AC
D763	VHD1SS119//1E	J	1SS119	AA
D764	RH-EX0395GEZZ	J	Zener Diode	AA
D766	RH-EX0152CEZZ	J	Zener Diode	AE
D767	RH-EX0215CEZZ	J	Zener Diode	AB
D768	RH-EX0412GEZZ	J	Zener Diode	AA
D1001	VHD1SS119//1E	J	1SS119	AA
D1003	VHD1SS119//1E	J	1SS119	AA
D1005	VHD1SS119//1E	J	1SS119	AA
D1006	VHD1SS119//1E	J	1SS119	AA
D1007	VHD1SS119//1E	J	1SS119	AA
D1008	VHD1SS119//1E	J	1SS119	AA
D1010	VHD1SS119//1E	J	1SS119	AA

DIODES (Continued)

Ref. No.	Part No.	★	Description	Code
D1012	VHD1SS119//1E	J	1SS119	AA
D1014	VHD1SS119//1E	J	1SS119	AA
D1015	VHD1SS119//1E	J	1SS119	AA
D1018	VHD1SS119//1E	J	1SS119	AA
D1020	VHD1SS119//1E	J	1SS119	AA
D1021	VHD1SS119//1E	J	1SS119	AA
D1030	VHD1SS152//-1	J	1SS152	AB
⚠ VA701	RH-VX0033CEZZ	J	Varistor	AD

PACKAGED CIRCUITS

Ref. No.	Part No.	★	Description	Code
⚠ PR701	RMPTP0061CEZZ	J	Positive Coefficient Thermistor	AV
X1001	RCRSB0090GEZZ	J	Crystal, Clock Osc.	AE

COIL AND TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
CF1001	RFiLC0112GEZZ	J	Ceramic Filter	AC
L201	VP-DF120K0000	J	Coil, 12μH	AB
L401	VP-DF221K0000	J	Coil, 220μH	AB
L601	RCiLZ0004PEZZ	R	Coil, Horizontal Line. (VT-1418M)	AN
L601	RCiLZ0007PEZZ	R	Coil, Horizontal Line. (VT-2118M)	AK
L602	RCiLP0088CEZZ	J	Coil, Peaking	AG
L751	RCiLP0106CEZZ	J	Coil, Peaking	AE
L753	VP-CF3R3K0000	J	Coil, 3.3μH	AB
L754	VP-DF180K0000	J	Coil, 18μH	AB
L1001	VP-XF120K0000	J	Coil, 12μH	AB
L1002	VP-DF120K0000	J	Coil, 12μH	AB
T601	RTRNZ0179CEZZ	J	Horizontal Drive Trans. (VT-1418M)	AE
T601	RTRNZ0026PEZZ	R	Horizontal Drive Trans. (VT-2118M)	AH
⚠ T602	RTRNF0096PEZZ	R	Flyback Trans, (FBT) (VT-1418M)	BE
⚠ T602	RTRNF0097PEZZ	R	Flyback Trans, (FBT) (VT-2118M)	BF
⚠ T701	RTRNZ0060PEZZ	R	Regulator Trans. (VT-1418M)	BH
⚠ T701	RTRNZ0062PEZZ	R	Regulator Trans. (VT-2118M)	AY
T1001	RCiLB0045CEZZ	J	Oscillation Coil, OSD	AE

CONTROLS

Ref. No.	Part No.	★	Description	Code
R421	RVR-M4632GEZZ	J	100k(B)Sub-Contrast	AB
R503	RVR-M4632GEZZ	J	100k(B)Vertical Size	AB
R526	RVR-M4626GEZZ	J	10k(B) Vertical Linearity (VT-1418M)	AB
R526	RVR-M4624GEZZ	J	4.7k(B) Vertical Linearity (VT-2118M)	AB

PWB-A DUNTK8300WEV1/V4
MOTHER UNIT (Continued)

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C201	VCEAGA1CW337M	J	330 16V Electrolytic	AC
C202	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C203	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C204	VCEAGA1HW104M	J	0.1 50V Electrolytic	AA
C205	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C206	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C207	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C208	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C209	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C210	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C211	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C212	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C213	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C214	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C301	VCEAGA1HW224M	J	0.22 50V Electrolytic	AA
C302	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C304	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C305	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C306	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C351	VCEAGA1HW106M	J	10 50V Electrolytic (VT-1418M)	AC
C352	VCKYD11EX182N	J	1800p25V Ceramic (VT-1418M)	AA
C353	VCEAGA1CW106M	J	10 16V Electrolytic (VT-1418M)	AA
C354	VCEAGA1CW477M	J	470 16V Electrolytic (VT-1418M)	AC
C355	VCEAGA1HW106M	J	10 50V Electrolytic	AC
C356	VCEAGA1HW106M	J	10 50V Electrolytic (VT-1418M)	AC
C357	VCEAGA1CW107M	J	100 16V Electrolytic (VT-1418M)	AB
C360	VCQYTA1HM104J	J	0.1 50V Mylar (VT-1418M)	AA
C361	VCEAGA1CW477M	J	470 16V Electrolytic (VT-1418M)	AC
C362	VCEAGA1CW226M	J	22 16V Electrolytic (VT-1418M)	AB
C363	VCQYTA1HM223J	J	0.022 50V Mylar (VT-1418M)	AA
C401	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C402	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C403	VCE9GA1CW226M	J	22 16V Elect. (N.P)	AB
C404	VCE9GA1CW106M	J	10 16V Elect. (N.P)	AB
C405	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C406	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C407	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C409	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C410	VCKYMN1HB102K	J	1000p50V Ceramic	AA
C411	VCEAGA1HW335M	J	3.3 50V Electrolytic	AB
C412	VCEAGA1CW106M	J	10 16V Electrolytic	AA

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C413	VCEAGA1CW108M	J	1000 16V Electrolytic	AD
C414	VCE9GA1CW476M	J	47 16V Elect. (N.P)	AB
C501	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C502	VCEAGA1VW107M	J	100 35V Electrolytic	AC
C503	VCEAGA1VW477M	J	470 35V Electrolytic	AD
C504	VCKYMN1HB102K	J	1000p50V Ceramic	AA
C505	VCQYTA1HM222J	J	2200p50V Mylar	AA
C506	VCKYPA1HB221K	J	220p 50V Ceramic	AA
C507	VCEAGA1HW224M	J	0.22 50V Electrolytic	AA
C508	VCSATA1VE475K	J	4.7 35V Tantalum	AD
C509	VCE9GA1HW474M	J	0.47 50V Elect. (N.P)	AB
C510	VCQYTA1HM822J	J	8200p50V Mylar	AA
C511	VCEAGA1HW225M	J	2.2 50V Electrolytic	AB
C512	VCEAGA1VW108M	J	1000 35V Electrolytic	AD
C513	VCFYFA1HA224J	J	0.22 50V M. Polyester	AB
C514	VCEAGA1HW224M	J	0.22 50V Electrolytic	AA
C515	VCQYTA1HM104J	J	0.1 50V Mylar (VT-1418M)	AA
C515	VCQYTA1HM683J	J	0.068 50V Mylar (VT-2118M)	AB
C601	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C602	VCEAGA1EW477M	J	470 25V Electrolytic	AD
C603	VCEAGA1CW227M	J	220 16V Electrolytic	AC
C604	VCQYSH2DM104K	J	0.1 200V Mylar	AD
C605	VCEAGA0JW337M	J	330 6.3V Electrolytic	AB
C606	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C607	VCEAGA1HW106M	J	10 50V Electrolytic	AC
C608	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C609	VCEAGA2CW106M	J	10 160V Electrolytic	AC
C610	VCFPPD2DB474J	J	0.47 200V M. Polyester	AE
C611	VCKYPA2HB221K	J	220p 500V Ceramic	AA
C612	VCFPPD2DB564J	J	0.56 200V M. Polyester	AF
C613	VCKYPH3DB561K	J	560p 2kV Ceramic (VT-1418M)	AC
C613	RC-KZ0036CEZZ	J	330p 2kV Ceramic (VT-2118M)	AB
C614	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C615	VCFPPC3CA272H	J	2700p1.6kV M.Polyester (VT-2118M)	AD
C616	VCFPPD3CA682H	J	6800P1.6kV M.Polyester	AE
C617	VCFYSB2EB223K	J	0.022 250V M. Polyester	AC
C618	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C620	VCCSMN1HL470J	J	47p 50V Ceramic	AA
⚠C701	RC-FZ008SGEZZ	J	0.1 AC250V Special	AD
⚠C703	RC-KZ0208CEZZ	J	0.01 AC250V Ceramic	AD
⚠C704	RC-KZ0208CEZZ	J	0.01 AC250V Ceramic	AD
⚠C705	RC-KZ0208CEZZ	J	0.01 AC250V Ceramic	AD
⚠C706	RC-KZ0208CEZZ	J	0.01 AC250V Ceramic	AD
⚠C707	RC-EZ0191CEZZ	J	330 400V Electrolytic	AS
⚠C708	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
⚠C709	VCKYPA2HB472K	J	4700p500V Ceramic	AB
⚠C710	VCEAGA1EW107M	J	100 25V Electrolytic	AD
⚠C711	VCEAGA1EW108M	J	1000 25V Electrolytic	AD
⚠C712	VCKYPA2HB102K	J	1000p500V Ceramic	AA

PWB-A DUNTK8300WEV1/V4 MOTHER UNIT (Continued)

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
⚠ C714	VCQPSC2JA333K	J	0.033 630V Polypro Film	AB
⚠ C715	RC-KZ0192CEZZ	J	1000p2kV Ceramic	AB
⚠ C716	RC-KZ0192CEZZ	J	1000p2kV Ceramic	AB
⚠ C722	RC-KZ0128CEZZ	J	2200p4kV Ceramic	AD
⚠ C723	RC-KZ0189CEZZ	J	560p 2kV Ceramic	AB
⚠ C724	RC-KZ0019GEZZ	J	0.1 Ceramic	AA
⚠ C725	RC-KZ0192CEZZ	J	1000p2kV Ceramic	AB
C751	RC-KZ0037CEZZ	J	390p 2kV Ceramic	AB
C752	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C753	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C754	VCEAGH1VW228M	J	2200 35V Electrolytic	AG
C755	VCEAGA1EW477M	J	470 25V Electrolytic	AD
C758	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C759	VCFYFA1HA334J	J	0.33 50V M. Polyester	AB
C760	VCE9GA1HW474M	J	0.47 50V Elect. (N.P)	AB
C761	RC-EZ0069CEZZ	J	220 160V Electrolytic	AG
	or			
	VCEAGW2CW227M	J	220 160V Electrolytic	AK
C762	RC-EZ0069CEZZ	J	220 160V Electrolytic	AG
	or			
	VCEAGW2CW227M	J	220 160V Electrolytic	AK
C763	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C764	VCEAGA1CW108M	J	1000 16V Electrolytic	AD
C765	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C766	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C767	VCKYPA2HB102K	J	1000p500V Ceramic	AA
C768	VCEAGA1CW228M	J	2200 16V Electrolytic	AE
C770	VCEAGA2AW107M	J	100 100V Electrolytic	AD
C771	VCEAGA1HW337M	J	330 50V Electrolytic	AD
C772	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C773	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C775	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C776	VCEAGA1AW107M	J	100 10V Electrolytic	AB
C777	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C1001	VCCSPA1HL680J	J	68p 50V Ceramic	AA
C1002	VCCSPA1HL181J	J	180p 50V Ceramic	AA
C1003	VCFYFA1HA334J	J	0.33 50V M. Polyester	AB
C1004	VCFYFA1HA334J	J	0.33 50V M. Polyester	AB
C1005	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C1006	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C1007	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C1008	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C1009	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1010	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1011	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1013	VCEAGA1CW336M	J	33 16V Electrolytic	AB
C1014	VCEAGA1CW336M	J	33 16V Electrolytic	AB
C1015	VCEAGA1CW336M	J	33 16V Electrolytic	AB
C1016	VCEAGA1CW336M	J	33 16V Electrolytic	AB
C1017	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1018	VCCCPA1HH220J	J	22p 50V Ceramic	AA

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C1019	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1020	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1021	VCEAGA1AW338M	J	3300 10V Electrolytic	AF
C1022	VCCCPA1HH150J	J	15p 50V Ceramic	AA
C1024	VCEAGA1CW337M	J	330 16V Electrolytic	AC
C1027	VCEAGA0JW107M	J	100 6.3V Electrolytic	AB
C1028	VCCCPA1HH1R0C	J	1p 50V Ceramic	AA
C1029	VCEAGA1HW335M	J	3.3 50V Electrolytic	AB
C1031	VCEAGA1HW335M	J	3.3 50V Electrolytic	AB
C1032	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C1033	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1034	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1035	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1036	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1037	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1038	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R201	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R202	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R203	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R204	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R205	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R206	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R207	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R208	VRD-RA2BE332J	J	3.3k 1/8W Carbon	AA
R209	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R210	VRD-RA2EE471J	J	470 1/4W Carbon	AA
R213	VRD-RA2BE105J	J	1M 1/8W Carbon	AA
R214	VRD-MN2BE105J	J	1M 1/8W Carbon	AA
R215	VRD-MN2BE105J	J	1M 1/8W Carbon	AA
R216	VRD-RA2BE155J	J	1.5M1/8W Carbon	AA
R220	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R221	VRD-RA2BE334J	J	330k1/8W Carbon	AA
R222	VRD-MN2BE824J	J	820k1/8W Carbon	AA
R301	VRD-RA2BE683J	J	68k 1/8W Carbon	AA
R302	VRD-MN2BE154J	J	150k1/8W Carbon	AA
R306	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R307	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R308	VRD-MN2BE000J	J	0 1/8W Carbon	AA
R309	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R351	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R352	VRD-MN2BE682J	J	6.8k 1/8W Carbon (VT-1418M)	AA
R353	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R354	VRD-MN2BE103J	J	10k 1/8W Carbon (VT-1418M)	AA
R355	VRD-RA2BE122J	J	1.2k 1/8W Carbon (VT-1418M)	AA
⚠ R356	VRG-RF2EB560J	J	56 1/4W Fuse Resistor (VT-1418M)	AB

PWB-A DUNTK8300WEV1/V4 MOTHER UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R357	VRD-MN2BE4R7J	J	4.7 1/8W Carbon (VT-1418M)	AA
R358	VRD-MN2BE103J	J	10k 1/8W Carbon (VT-1418M)	AA
R401	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R402	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R406	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R407	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R410	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R411	VRD-MN2BE000J	J	0 1/8W Carbon	AA
R412	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R414	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R415	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R416	VRD-RM2HD471J	J	470 1/2W Carbon	AA
R419	VRD-MN2BE332J	J	3.3k 1/8W Carbon (VT-1418M)	AA
R420	VRD-RA2EE683J	J	68k 1/4W Carbon (VT-1418M)	AA
R421	*See Controls*			
R422	VRD-RA2EE564J	J	560k 1/4W Carbon	AA
R423	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R424	VRD-RA2BE272J	J	2.7k 1/8W Carbon (VT-1418M)	AA
R425	VRD-MN2BE333J	J	33k 1/8W Carbon	AA
⚠ R501	VRG-RL2HB3R3J	J	3.3 1/2W Fuse Resistor	AB
R502	VRD-MN2BE183J	J	18k 1/8W Carbon (VT-1418M)	AA
R502	VRD-MN2BE273J	J	27k 1/8W Carbon (VT-2118M)	AA
R503	*See Controls*			
R504	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R506	VRD-RA2BE563J	J	56k 1/8W Carbon	AA
R507	VRD-RA2BE563J	J	56k 1/8W Carbon	AA
R508	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R509	VRD-MN2BE104J	J	100k 1/8W Carbon	AA
R510	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R511	VRD-MN2BE392J	J	3.9k 1/8W Carbon	AA
R512	VRD-RM2HD152J	J	1.5k 1/2W Carbon	AA
R513	VRD-RM2HD222J	J	2.2k 1/2W Carbon (VT-2118M)	AA
R514	VRS-VV3DB272J	J	2.7k 2W Metal Oxide (VT-1418M)	AA
R514	VRS-VV3DB681J	J	680 2W Metal Oxide (VT-2118M)	AA
R515	VRD-MN2BE393J	J	39k 1/8W Carbon	AA
R516	VRD-MN2BE273J	J	27k 1/8W Carbon	AA
R517	VRD-MN2BE183J	J	18k 1/8W Carbon	AA
R518	VRD-MN2BE333J	J	33k 1/8W Carbon	AA
R519	VRD-MN2BE181J	J	180 1/8W Carbon (VT-1418M)	AA
R519	VRD-MN2BE221J	J	220 1/8W Carbon (VT-2118M)	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R520	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R521	VRD-RM2HD3R9J	J	3.9 1/2W Carbon (VT-1418M)	AA
R521	VRD-RM2HD2R7J	J	2.7 1/2W Carbon (VT-2118M)	AA
⚠ R522	RR-XZ0035TAZZ	J	22 1/4W Fuse Resistor	AB
R523	VRD-RM2HD561J	J	560 1/2W Carbon	AA
R524	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R525	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R526	*See Controls*			
R527	VRD-MN2BE392J	J	3.9k 1/8W Carbon	AA
R528	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
⚠ R601	VRG-RL2HB5R6J	J	5.6 1/2W Fuse Resistor	AB
R602	VRD-RM2HD472J	J	4.7k 1/2W Carbon	AA
R603	VRS-SU2HB102J	J	1k 1/2W Metal Oxide	AA
R604	VRD-RA2EE393J	J	39k 1/4W Carbon	AA
R605	VRD-RA2EE124J	J	120k 1/4W Carbon	AA
R606	VRD-RA2EE564J	J	560k 1/4W Carbon	AA
R607	VRD-RA2EE394J	J	390k 1/4W Carbon	AA
R608	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
⚠ R609	VRG-RL2HB220J	J	22 1/2W Fuse Resistor	AB
R610	VRD-RA2EE103J	J	10k 1/4W Carbon (VT-1418M)	AA
R610	VRD-RA2EE272J	J	2.7k 1/4W Carbon (VT-2118M)	AA
⚠ R611	VRG-RF2EB3R3J	J	3.3 1/4W Fuse Resistor	AB
R612	VRW-KX4AC220K	J	22 10W Cement (VT-1418M)	AE
R612	VRW-KQ41C220J	R	22 15W Cement (VT-2118M)	AF
R613	VRD-RA2EE223J	J	22k 1/4W Carbon	AA
⚠ R614	VRG-RL2HB181J	J	180 1/2W Fuse Resistor (VT-1418M)	AB
⚠ R614	VRG-RL2HB390J	J	39 1/2W Fuse Resistor (VT-2118M)	AB
R615	VRD-RM2HD151J	J	150 1/2W Carbon (VT-1418M)	AA
R615	VRD-RM2HD390J	J	39 1/2W Carbon (VT-2118M)	AA
R616	VRD-RM2HD222J	J	2.2k 1/2W Carbon	AA
R617	VRD-MN2BE331J	J	330 1/8W Carbon (VT-1418M)	AA
R617	VRD-MN2BE151J	J	150 1/8W Carbon (VT-2118M)	AA
R618	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R619	VRS-SV3DB272J	J	2.7k 2W Metal Oxide	AA
R620	VRS-SV3DB222J	J	2.2k 2W Metal Oxide (VT-1418M)	AB
R620	VRS-SV3DB272J	J	2.7k 2W Metal Oxide (VT-2118M)	AA
R621	VRD-RM2HD332J	J	3.3k 1/2W Carbon	AA
R622	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R623	VRN-VV3ABR56J	J	0.56 1W Metal Film (VT-1418M)	AA

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RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R623	VRN-VV3DB1R8J	J	1.8 2W Metal Oxide (VT-2118M)	AA
R624	VRS-VV3AB562J	J	5.6k 1W Metal Oxide (VT-1418M)	AA
⚠ R701	RR-DZ0013CEZZ	J	3.3M Special	AD
⚠ R702	VRW-KQ41C3R3K	J	3.3 15W Cement	AG
⚠ R703	VRS-KT3LB223J	J	22K 3W Metal Oxide	AC
⚠ R704	VRS-KT3LB223J	J	22K 3W Metal Oxide	AC
⚠ R705	VRD-RM2HD101J	J	100 1/2W Carbon	AA
⚠ R706	VRD-RM2HD222J	J	2.2k 1/2W Carbon	AA
⚠ R707	VRD-RM2HD681J	J	680 1/2W Carbon	AA
⚠ R709	VRD-RM2HD222J	J	2.2k 1/2W Carbon	AA
⚠ R710	VRD-RM2HD392J	J	3.9k 1/2W Carbon	AA
⚠ R711	VRD-RM2HD472J	J	4.7k 1/2W Carbon	AA
⚠ R712	VRG-RL2HB3R9J	J	3.9 1/2W Fuse Resistor	AD
⚠ R714	VRS-KT3LB473J	J	47k 3W Metal Oxide	AE
⚠ R715	VRD-RA2BE681J	J	680 1/8W Carbon	AA
⚠ R716	VRN-VV3ABR22J	J	0.22 1W Metal Film (VT-1418M)	AA
⚠ R716	VRN-VV3ABR15J	J	0.15 1W Metal Film (VT-2118M)	AA
⚠ R720	VRC-UA2HG825K	J	8.2M 1/2WSolid	AA
⚠ R721	VRC-UA2HG825K	J	8.2M 1/2WSolid	AA
R751	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R752	VRD-RM2HD182J	J	1.8k 1/2W Carbon	AA
R754	VRD-RA2HD563G	J	56k 1/2W Carbon	AB
R755	VRD-RA2HD822G	J	8.2k 1/2W Carbon	AA
R756	VRD-RA2HD564G	J	560k 1/2W Carbon	AB
R757	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA
R758	VRD-RA2BE332J	J	3.3k 1/8W Carbon	AA
R759	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
⚠ R760	VRG-RF2EB221J	J	220 1/4W Fuse Resistor	AB
⚠ R761	VRG-RL2HB1R0K	J	1 1/2W Fuse Resistor	AB
R762	VRS-VV3DB221J	J	220 2W Metal Oxide	AA
R763	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R764	VRD-RA2BE122J	J	1.2k 1/8W Carbon	AA
R765	VRD-RA2BE223J	J	22k 1/8W Carbon	AA
R766	VRD-RA2BE823J	J	82k 1/8W Carbon	AA
R767	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R768	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
R772	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R774	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R775	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R777	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R779	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA
R786	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R787	VRS-KT3LB101J	J	100 3W Metal Oxide	AC
R1001	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1002	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1003	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1004	VRD-RA2BE183J	J	18k 1/8W Carbon	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R1005	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1006	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R1007	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1008	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1009	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R1010	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1011	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA
R1012	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R1013	VRD-MN2BE122J	J	1.2k 1/8W Carbon	AA
R1014	VRD-MN2BE562J	J	5.6k 1/8W Carbon (VT-1418M)	AA
R1014	VRD-MN2BE822J	J	8.2k 1/8W Carbon (VT-2118M)	AA
R1015	VRD-MN2BE223J	J	22k 1/8W Carbon (VT-1418M)	AA
R1015	VRD-MN2BE103J	J	10k 1/8W Carbon (VT-2118M)	AA
R1016	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1017	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1018	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1019	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R1020	VRD-MN2BE562J	J	5.6k 1/8W Carbon	AA
R1021	VRD-MN2BE272J	J	2.7k 1/8W Carbon	AA
R1022	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1023	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R1024	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
R1025	VRD-MN2BE332J	J	3.3k 1/8W Carbon	AA
R1026	VRD-MN2BE272J	J	2.7k 1/8W Carbon	AA
R1027	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R1028	VRD-MN2BE562J	J	5.6k 1/8W Carbon	AA
R1029	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R1030	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R1031	VRD-RA2BE822J	J	8.2k 1/8W Carbon	AA
R1032	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1034	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1036	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA
R1037	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1040	VRD-RA2BE223J	J	22k 1/8W Carbon	AA
R1041	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1044	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R1045	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1046	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R1047	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1048	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1049	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1050	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R1051	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R1052	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1053	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R1054	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R1055	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1056	VRD-MN2BE151J	J	150 1/8W Carbon	AA
R1057	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R1058	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA

PWB-A DUNTK8300WEV1/V4 MOTHER UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R1059	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1060	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1061	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1062	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R1063	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1064	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R1065	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1066	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1067	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R1068	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1069	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1070	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R1071	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1072	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1073	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
R1074	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1075	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1078	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1080	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1082	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1084	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1086	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1088	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1090	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1091	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1092	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1093	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1094	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1097	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1101	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1102	VRD-MN2BE223J	J	22k 1/8W Carbon	AA
R1103	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1104	VRD-MN2BE223J	J	22k 1/8W Carbon	AA
⚠ R1105	VRG-RL2HB100J	J	10 1/2W Fuse Resistor	AB
R1106	VRD-MN2BE680J	J	68 1/8W Carbon	AA
R1108	VRD-MN2BE333J	J	33k 1/8W Carbon	AA
R1109	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1110	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1111	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1112	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1113	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1114	VRD-MN2BE273J	J	27k 1/8W Carbon	AA
R1115	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R1116	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1117	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1118	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R1119	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1121	VRD-RA2BE101J	J	100 1/8W Carbon	AA

RELAY AND SWITCHES

Ref. No.	Part No.	★	Description	Code
RY751	RRLYJ0012GEZZ	J	Power Relay	AH
S501	QSW-B0015CEZZ	J	Vertical Center Adj.	AC
⚠ S701	QSW-P0566CEZZ	J	Main Power Switch	AL

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠ F701	QFS-C3224CEZZ	J	Fuse, T3.15A, 250V	AD
⚠ F751	QFS-J2521GEZZ	J	IC Protector	AE
FB501	RBLN-0014GEZZ	J	Ferrite Bead	AB
FB601	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB602	RBLN-0037CEZZ	J	Ferrite Bead	AB
⚠ FB701	RBLN-0010CEZZ	J	Ferrite Bead	AC
⚠ FB703	RBLN-0010CEZZ	J	Ferrite Bead	AC
⚠ FB704	RBLN-0009CEZZ	J	Ferrite Bead	AC
FB751	RBLN-0010CEZZ	J	Ferrite Bead	AC
FB753	RBLN-0010CEZZ	J	Ferrite Bead	AC
FB754	RBLN-0037CEZZ	J	Ferrite Bead	AB
FH701	QFSHD1009CEZZ	J	Fuse Holder	AA
FH702	QFSHD1010CEZZ	J	Fuse Holder	AA
P201	QPLGN0341CE04	J	Plug 3-pin, TP201	AC
P301	QPLGN0441CEZZ	J	Plug 4-pin, (S) (VT-1418M)	AB
P302	QPLGN0241CEZZ	J	Plug 2-pin, (DB) (VT-2118M)	AA
P303	QPLGN0741CEZZ	J	Plug 7-pin, (DA) (VT-2118M)	AC
P401	QPLGN0878GEZZ	J	Plug 8-pin, (AD)	AC
P402	QPLGN0678GEZZ	J	Plug 6-pin, (AB)	AB
P501	QPLGN0505CEZZ	J	Plug 5-pin, (F)	AB
P701	QPLGN0304CEZZ	J	Plug 3-pin, (A)	AB
P702	QPLGN0207CEZZ	J	Plug 2-pin, (AA)	AA
P703	QPLGN0207CEZZ	J	Plug 2-pin, (BB)	AA
P704	QPLGN0207CEZZ	J	Plug 2-pin, (G)	AA
P751	QPLGN0678GEZZ	J	Plug 6-pin, (AE)	AB
P752	QPLGN0441CEZZ	J	Plug 4-pin, (H)	AB
P1005	QPLGN0878GEZZ	J	Plug 8-pin, (AF)	AC
P1006	QPLGN0978GEZZ	J	Plug 9-pin, (AG)	AC
P1007	QPLGN0778GEZZ	J	Plug 7-pin, (AL)	AC
P1008	QPLGN0478GEZZ	J	Plug 4-pin, (AC)	AB
SC1001	QSOCN0969CEZZ	J	Socket 9-piN, (Y1)	AC
SC1002	QSOCN0869CEZZ	J	Socket 8-pin, (Y2)	AC
SC1003	QSOCN0969CEZZ	J	Socket 9-pin, (Y3)	AC
SC1004	QSOCN0969CEZZ	J	Socket 9-pin, (Y4)	AC
	TLABZ0052PEZZ	R	Label "T3.15A"	AA
	LHLDW1002PEZZ	R	Wire Holder (VT-1418M)	AB
	LHLDW1047PEZZ	R	Wire Holder, x 1	AB
	QTiPM0083CEZZ	J	Tip, (L5)	AB

—— End of PWB-A ——

PWB-B DUNTK8303WEV1/V3
CRT SOCKET UNIT

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q851	VS2SC2229O/1E	J	2SC2229(O), R-Output	AD
Q852	VS2SC2229O/1E	J	2SC2229(O), G-Output	AD
Q853	VS2SC2229O/1E	J	2SC2229(O), B-Output	AD

COIL

Ref. No.	Part No.	★	Description	Code
L851	VP-CF681K0000	J	Coil, 680μH	AB

CONTROLS

Ref. No.	Part No.	★	Description	Code
R853	RVR-B5411CEZZ	J	5k(B) Red Bias	AC
R857	RVR-B5410CEZZ	J	500(B) Green Drive	AC
R859	RVR-B5411CEZZ	J	5k(B) Green Bias	AC
R863	RVR-B5410CEZZ	J	500(B) Blue Drive	AC
R865	RVR-B5411CEZZ	J	5k(B) Blue Bias	AC

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C851	VCKYPA1HB271K	J	270p 50V Ceramic	AA
C852	VCKYPA1HB221K	J	220p 50V Ceramic (VT-1418M)	AA
C852	VCKYPA1HB181K	J	180p 50V Ceramic (VT-2118M)	AA
C853	VCKYPA1HB271K	J	270p 50V Ceramic	AA
⚠ C854	RC-KZ0177CEZZ	J	4700p 2kV Ceramic	AC
C855	VCEAGA2DW106M	J	10 200V Electrolytic	AC
C899	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R851	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R853	*See Controls*			
R855	VRD-RM2HD272J	J	2.7k 1/2W Carbon (VT-1418M)	AA
R856	VRD-RA2BE271J	J	270 1/8W Carbon (VT-1418M)	AA
R856	VRD-RA2BE331J	J	330 1/8W Carbon (VT-2118M)	AA
R857	*See Controls*			
R859	*See Controls*			
R860	VRS-VV3DB153J	J	15k 2W Metal Oxide	AA
R861	VRD-RM2HD272J	J	2.7k 1/2W Carbon (VT-1418M)	AA
R862	VRD-RA2BE181J	J	180 1/8W Carbon (VT-1418M)	AA
R862	VRD-RA2BE391J	J	390 1/8W Carbon (VT-2118M)	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R863	*See Controls*			
R865	*See Controls*			
R866	VRS-VV3DB153J	J	15k 2W Metal Oxide	AA
R867	VRD-RM2HD272J	J	2.7k 1/2W Carbon	AA
R868	VRS-VV3DB153J	J	15k 2W Metal Oxide	AA
R869	VRD-RM2HD272J	J	2.7k 1/2W Carbon (VT-2118M)	AA
R870	VRD-RM2HD272J	J	2.7k 1/2W Carbon (VT-2118M)	AA
R899	VRD-RA2BE100J	J	10 1/8W Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P851	QPLGN0441CEZZ	J	Plug 4-pin, (H)	AB
P852	QPLGN0541CEZZ	J	Plug 5-pin, (K)	AB
⚠ SC851	QSOCV0829CEZZ	J	CRT Socket (VT-1418M)	AK
⚠ SC851	QSOCV0913CEZZ	J	CRT Socket (VT-2118M)	AK

—— End of PWB-B ——

PWB-D DUNTK8302WEV1/V3 POWER SW, R/C UNIT

CAPACITOR

Ref. No.	Part No.	★	Description	Code
C3001	VCEAGA1AW107M	J	100 10V Electrolytic	AB

RESISTORS

Ref. No.	Part No.	★	Description	Code
R3001	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R3002	VRD-MN2BE470J	J	47 1/8W Carbon	AA

SWITCH

Ref. No.	Part No.	★	Description	Code
⚠ S3001	QSW-K0114CEZZ	J	Power Switch	AE

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P3001	QPLGN0478GEZZ	J	Plug 4-pin, (AC)	AB
RMC3001	RRMCU0207CEZZ	J	Remote Control Receiver	AM
	QCNW-1617PEZZ	R	Connecting Wire, (AC) (VT-1418M)	AF
	QCNW-1644PEZZ	R	Connecting Wire, (AC) (VT-2118M)	AF

—— End of PWB-D ——

PWB-F DUNTK8373WEV1/V3 LINE FILTER UNIT

COIL

Ref. No.	Part No.	★	Description	Code
⚠ L1701	RCiLF0087CEZZ	J	Coil, Line Filter	AL
⚠ L1702	RCiLF0087CEZZ	J	Coil, Line Filter	AL

CAPACITOR

Ref. No.	Part No.	★	Description	Code
⚠ C1702	RC-FZ016SGEZZ	J	0.47 AC250V M.Polyester	AK

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P1701	QPLGN0207CEZZ	J	Plug 2-pin, (AA)	AA
P1702	QPLGN0207CEZZ	J	Plug 2-pin, (BB)	AA
	QCNW-1615PEZZ	R	Connecting Wire, (AA)	AG
	QCNW-1637PEZZ	R	Connecting Wire, (BB)	AH

—— End of PWB-F ——

PWB-Y DUNTK8301WEV1/V3 VCJ, A/V UNIT

INTEGRATED CIRCUIT

Ref. No.	Part No.	★	Description	Code
IC1801	RH-iX0969CEN1	J	TA8659AN, Video/Chroma/Jungle	BA

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q1302	VS2SC1815GW-1	J	2SC1815(G), S-Mute	AB
Q1401	VSDTC124ES/-1	J	DTC124ES	AB
Q1402	VS2SA1015Y/1E	J	2SA1015(Y), Picture Amp.	AC
Q1403	VS2SA1015Y/1E	J	2SA1015(Y), Current Source	AC
Q1405	VS2SC3399//-1	J	2SC3399, Blue Mute Sw.	AB
Q1406	VS2SC1815GW-1	J	2SC1815(G)	AB
Q1451	VS2SC1815GW-1	J	2SC1815(G), Video Amp.	AB
Q1501	VS2SC1815GW-1	J	2SC1815(G)	AB
Q1601	VS2SC1815GW-1	J	2SC1815(G)	AB
Q1602	VS2SC3399//-1	J	2SC3399, Blue Switch	AB
Q1801	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1802	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1803	VSDTC124ES/-1	J	DTC124ES	AB
Q1804	VSDTC124ES/-1	J	DTC124ES	AB
Q1806	VS2SC1815GW-1	J	2SC1815(G)	AB

DIODES

Ref. No.	Part No.	★	Description	Code
D1301	VHD1SS119//1E	J	1SS119	AA
D1405	VHD1SS119//1E	J	1SS119	AA
D1406	VHD1SS119//1E	J	1SS119	AA
D1407	VHD1SS119//1E	J	1SS119	AA
D1409	VHD1SS119//1E	J	1SS119	AA
D1501	RH-EX0384GEZZ	J	Zener Diode	AA
D1506	RH-EX0395GEZZ	J	Zener Diode, 9V	AA
D1601	RH-EX0200CEZZ	J	Zener Diode	AB
D1602	RH-EX0395GEZZ	J	Zener Diode, 9V	AA
D1603	RH-EX0395GEZZ	J	Zener Diode, 9V	AA
D1802	RH-EX0395GEZZ	J	Zener Diode, 9V	AA
D1803	VHD1SS119//1E	J	1SS119	AA
D1805	RH-EX0200CEZZ	J	Zener Diode	AB
D1806	RH-EX0200CEZZ	J	Zener Diode	AB
D1807	RH-EX0200CEZZ	J	Zener Diode	AB
D1808	VHD1SS119//1E	J	1SS119	AA
D1809	VHD1SS119//1E	J	1SS119	AA

PACKAGED CIRCUITS

Ref. No.	Part No.	★	Description	Code
X1801	RCRSB0067CEZZ	J	Crystal, 4.43 MHz	AQ
X1802	RCRSB0001PEZZ	R	Crystal	AL

PWB-Y DUNTK8301WEV1/V3 VCJ, A/V UNIT (Continued)

COIL AND TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
CF1401	RFiLC0170CEZZ	J	Ceramic Filter	AD
CF1601	RFiLA0005CEZZ	J	Ceramic Filter, 503kHz	AE
DL1401	RCiLZ0556CEZZ	J	Delay Line, Video Delay	AG
DL1801	RCiLZ0475CEZZ	J	Delay Line	AP
L1401	VP-XF101K0000	J	Coil, 100μH	AB
L1402	VP-DF101K0000	J	Coil, 100μH (VT-1418M)	AB
L1402	VP-DF220K0000	J	Coil, 22μH (VT-2118M)	AB
L1403	VP-MK560K0000	J	Coil, 56μH	AB
L1404	VP-XF470K0000	J	Coil, 47μH	AB
L1801	VP-DF8R2K0000	J	Coil, 8.2μH	AB
L1802	VP-DF270K0000	J	Coil, 27μH	AB
L1803	VP-DF220K0000	J	Coil, 22μH	AB
T1801	RCiLZ0511CEZZ	J	1H DL Matching Coil	AD
T1802	RCiLi0364CEZZ	J	SECAM Bell Filter	AD
T1803	RCiLi0536CEZZ	J	SECAM Killer	AD
T1804	RCiLi0536CEZZ	J	SECAM R-Y Discriminator	AD
T1805	RCiLi0536CEZZ	J	SECAM B-Y Discriminator	AD

CONTROLS

Ref. No.	Part No.	★	Description	Code
R1425	RVR-M4626GEZZ	J	10k(B) Sub-Brightness	AB
R1602	RVR-M4614GEZZ	J	100(B) Horiz. Center	AB
R1802	RVR-M4628GEZZ	J	22k(B) Sub-Colour	AB
R1806	RVR-M4620GEZZ	J	1k(B) DL-Amp.	AB
R1882	RVR-M4626GEZZ	J	10k(B) Sub-Tint	AB

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C1308	VCKYMN1HB102K	J	1000p 50V Ceramic	AA
C1401	VCE9GA1CW106M	J	10 16V Elect. (N.P)	AB
C1402	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1403	VCCCPA1HH560J	J	56p 50V Ceramic	AA
C1404	VCKYMN1HB102K	J	1000p 50V Ceramic	AA
C1405	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C1406	VCEAGA1HW106M	J	10 50V Electrolytic	AC
C1407	VCEAGA0JW107M	J	100 6.3V Electrolytic	AB
C1408	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C1409	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C1410	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1411	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C1412	VCEAGA1HW224T	J	0.22 50V Electrolytic	AB
C1413	VCEAGA1HW224T	J	0.22 50V Electrolytic	AB
C1414	VCEAGA1HW224T	J	0.22 50V Electrolytic	AB
C1415	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1416	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C1417	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C1419	VCEAGA1HW106M	J	10 50V Electrolytic	AC

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C1420	RC-KZ0019GEZZ	J	0.1 Ceramic	AA
C1421	VCEAGA1CW476M	J	47 16V Electrolytic (VT-1418M)	AB
C1421	VCEAGA1CW106M	J	10 16V Electrolytic (VT-2118M)	AA
C1422	VCEAGA1CW227M	J	220 16V Electrolytic	AC
C1451	VCEAGA1CW108M	J	1000 16V Electrolytic	AD
C1452	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1453	VCEAGA0JW477M	J	470 6.3V Electrolytic	AB
C1454	VCKYMN1CX182M	J	1800p 16V Ceramic	AA
C1459	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C1510	VCSATA1VE225K	J	2.2 35V Tantalum	AC
C1601	VCQYTA1HM223J	J	0.022 50V Mylar	AA
C1602	VCQYTA1HM333J	J	0.033 50V Mylar	AA
C1603	VCQYTA1HM223J	J	0.022 50V Mylar	AA
C1604	VCEAGA1HW225M	J	2.2 50V Electrolytic	AB
C1605	VCKYPA1HB471K	J	470p 50V Ceramic	AA
C1606	VCCCPA1HH121J	J	120p 50V Ceramic	AA
C1607	VCQYTA1HM333J	J	0.033 50V Mylar	AA
C1612	VCCCPA1HH101J	J	100p 50V Ceramic	AA
C1614	VCE9GA1HW105M	J	1 50V Elect. (N.P)	AB
C1629	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C1630	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C1801	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C1802	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1803	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1804	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1805	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1806	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1807	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C1808	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C1809	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1811	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1812	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1813	VCQYTA1HM563J	J	0.056 50V Mylar	AB
C1814	VCQYTA1HM103J	J	0.01 50V Mylar	AA
C1815	VCE9GA1HW105M	J	1 50V Elect. (N.P)	AB
C1816	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1817	VCCCPA1HH330J	J	33p 50V Ceramic	AA
C1818	VCQYTA1HM563J	J	0.056 50V Mylar	AA
C1819	VCCCPA1HH330J	J	33p 50V Ceramic	AA
C1820	VCCCPA1HH150J	J	15p 50V Ceramic	AA
C1822	VCCSMN1HL220J	J	22p 50V Ceramic	AA
C1823	VCCSMN1HL220J	J	22p 50V Ceramic	AA
C1824	VCCSMN1HL220J	J	22p 50V Ceramic	AA
C1825	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C1827	VCCSPA1HL181J	J	180p 50V Ceramic	AA
C1828	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1829	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C1830	VCKYMN1HB181K	J	180p 50V Ceramic	AA
C1831	VCEAGA1CW227M	J	220 16V Electrolytic	AC
C1832	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1833	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C1834	VCCCMN1HH100J	J	10p 50V Ceramic	AA

PWB-Y DUNTK8301WEV1/V3 VCJ, A/V UNIT (Continued)

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C1836	VCEAGA1CW227M	J	220 16V Electrolytic	AC
C1837	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1840	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1841	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C1890	VCCCPA1HL181J	J	180p 50V Ceramic	AA
C1891	VCCCPA1HH151J	J	150p 50V Ceramic	AA
C1892	VCCCPA1HH390J	J	39p 50V Ceramic	AA
C1893	VCCCPA1HH180J	J	18p 50V Ceramic	AA
C1894	VCCCPA1HH151J	J	150p 50V Ceramic	AA
C1895	VCCCPA1HH220J	J	22p 50V Ceramic	AA
C1896	VCQYTA1HM563J	J	0.056 50V Mylar	AA
C1897	VCKYMN1CY103N	J	0.01 16V Ceramic	AA
C1901	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R1301	VRD-MN2BE183J	J	18k 1/8W Carbon	AA
R1302	VRD-MN2BE273J	J	27k 1/8W Carbon	AA
R1314	VRD-MN2BE100J	J	10 1/8W Carbon	AA
R1315	VRD-MN2BE104J	J	100k 1/8W Carbon	AA
R1317	VRD-MN2BE101J	J	100 1/8W Carbon	AA
R1401	VRD-MN2BE331J	J	330 1/8W Carbon	AA
R1402	VRD-MN2BE152J	J	1.5k 1/8W Carbon	AA
R1403	VRD-MN2BE821J	J	820 1/8W Carbon (VT-1418M)	AA
R1403	VRD-MN2BE681J	J	680 1/8W Carbon (VT-2118M)	AA
R1404	VRD-MN2BE821J	J	820 1/8W Carbon	AA
R1405	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R1406	VRD-MN2BE332J	J	3.3k 1/8W Carbon	AA
R1407	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1408	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1409	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1410	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1411	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1413	VRD-RA2BE223J	J	22k 1/8W Carbon	AA
R1414	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1415	VRD-MN2BE561J	J	560 1/8W Carbon	AA
R1416	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1417	VRD-MN2BE683J	J	68k 1/8W Carbon	AA
R1418	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1423	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1424	VRD-MN2BE123J	J	12k 1/8W Carbon	AA
R1426	VRD-MN2BE823J	J	82k 1/8W Carbon	AA
R1427	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1429	VRD-MN2BE124J	J	120k 1/8W Carbon	AA
R1430	VRD-RM2HD471J	J	470 1/2W Carbon	AA
R1431	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1432	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1433	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R1434	VRD-MN2BE561J	J	560 1/8W Carbon	AA
R1435	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1436	VRD-MN2BE561J	J	560 1/8W Carbon	AA
R1437	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1451	VRD-RM2HD100J	J	10 1/2W Carbon	AA
R1452	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1453	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1454	VRD-RM2HD151J	J	150 1/2W Carbon	AA
R1455	VRD-RA2EE750J	J	75 1/4W Carbon	AA
R1456	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1468	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1475	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R1501	VRD-MN2BE682J	J	6.8k 1/8W Carbon	AA
R1505	VRD-MN2BE562J	J	5.6k 1/8W Carbon	AA
R1527	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1528	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1601	VRD-MN2BE471J	J	470 1/8W Carbon	AA
R1603	VRD-MN2BE332J	J	3.3k 1/8W Carbon	AA
R1604	VRD-MN2BE103J	J	10k 1/8W Carbon	AA
R1605	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R1606	VRD-MN2BE182J	J	1.8k 1/8W Carbon	AA
R1607	VRD-MN2BE224J	J	220k 1/8W Carbon	AA
R1608	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R1609	VRD-RA2EE101J	J	100 1/4W Carbon	AA
R1616	VRD-MN2BE681J	J	680 1/8W Carbon	AA
R1618	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1619	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1641	VRD-MN2BE561J	J	560 1/8W Carbon	AA
R1801	VRD-MN2BE682J	J	6.8k 1/8W Carbon	AA
R1803	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1804	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1805	VRD-MN2BE391J	J	390 1/8W Carbon	AA
R1807	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1809	VRD-MN2BE334J	J	330k 1/8W Carbon	AA
R1810	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1811	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R1812	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1813	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1814	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1815	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1816	VRD-RA2EE475J	J	4.7M 1/4W Carbon	AA
R1817	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1818	VRD-MN2BE332J	J	3.3k 1/8W Carbon	AA
R1819	VRD-RA2EE475J	J	4.7M 1/4W Carbon	AA
R1820	VRD-MN2BE392J	J	3.9k 1/8W Carbon	AA
R1821	VRD-MN2BE392J	J	3.9k 1/8W Carbon	AA
R1822	VRD-MN2BE392J	J	3.9k 1/8W Carbon	AA
R1824	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1825	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1826	VRD-MN2BE221J	J	220 1/8W Carbon	AA
R1828	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1830	VRD-MN2BE561J	J	560 1/8W Carbon	AA
R1831	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1832	VRD-MN2BE561J	J	560 1/8W Carbon	AA

PWB-Y DUNTK8301WEV1/V3
VCJ, A/V UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R1833	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1835	VRD-MN2BE822J	J	8.2k 1/8W Carbon	AA
R1836	VRD-RA2EE475J	J	4.7M1/4W Carbon	AA
R1837	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R1839	VRD-MN2BE273J	J	27k 1/8W Carbon	AA
R1840	VRD-MN2BE153J	J	15k 1/8W Carbon	AA
R1846	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1847	VRD-MN2BE102J	J	1k 1/8W Carbon	AA
R1848	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1849	VRD-MN2BE472J	J	4.7k 1/8W Carbon	AA
R1879	VRD-MN2BE562J	J	5.6k 1/8W Carbon	AA
R1880	VRD-MN2BE562J	J	5.6k 1/8W Carbon	AA
R1882	*See Controls*			
R1883	VRD-RA2BE153J	J	15k 1/8W Carbon	AA
R1884	VRD-MN2BE473J	J	47k 1/8W Carbon	AA
R1885	VRD-MN2BE104J	J	100k 1/8W Carbon	AA
R1886	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R1890	VRD-RA2BE102J	J	1k 1/8W Carbon (VT-1418M)	AA
R1890	VRD-MN2BE102J	J	1k 1/8W Carbon (VT-2118M)	AA
R1891	VRD-MN2BE821J	J	820 1/8W Carbon	AA
R1892	VRD-MN2BE122J	J	1.2k 1/8W Carbon	AA
R1893	VRD-MN2BE560J	J	56 1/8W Carbon	AA
R1894	VRD-MN2BE222J	J	2.2k 1/8W Carbon	AA
R1895	VRD-RA2EE475J	J	4.7M1/4W Carbon	AA

SWITCH

Ref. No.	Part No.	★	Description	Code
⚠S1401	QSW-B0015CEZZ	J	Service Switch	AC

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P1001	QPLGN0962CEZZ	J	Plug 9-pin, (Y1)	AC
P1002	QPLGN0862CEZZ	J	Plug 8-pin, (Y2)	AC
P1003	QPLGN0962CEZZ	J	Plug 9-pin, (Y3)	AC
P1004	QPLGN0962CEZZ	J	Plug 9-pin, (Y4)	AC
P1005	QPLGN0541CEZZ	J	Plug 5-pin, (K)	AB
⚠J1401	QJAKF0011CEZZ	J	Jack	AG
	LHLDW1037PEZZ	R	Wire Holder	AB

—— End of PWB-Y ——

PWB-T DUNTK8407WEV0
SOUND OUTPUT UNIT

INTEGRATED CIRCUIT

Ref. No.	Part No.	★	Description	Code
IC3001	RH-iX0241CEZZ	J	Sound Attenuater	AF
IC3002	VHiTDA7233/-1	J	Sound Amp. Left	AF
IC3003	VHiTDA7233/-1	J	Sound Amp. Right	AF

DIODES

Ref. No.	Part No.	★	Description	Code
D3001	VHD1SS119//1E	J	1SS119	AA
D3002	RH-EX0315CEZZ	J	Zener Diode	AA

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C3001	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C3002	VCKYD11EX182N	J	1800p 25V Ceramic	AA
C3003	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C3004	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C3019	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C3020	VCQYTA1HM472J	J	4700p 50V Mylar	AB
C3021	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C3022	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C3023	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C3024	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C3025	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C3026	VCQYTA1HM472J	J	4700p 50V Mylar	AB
C3027	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C3028	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C3029	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C3030	VCQYTA1HM104J	J	0.1 50V Mylar	AA
C3031	VCEAGA1CW477M	J	470 16V Electrolytic	AC
C3032	VCKYD11CY103N	J	0.01 16V Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R3002	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R3004	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
⚠R3006	VRG-RF2EB560J	J	56 1/4W Fuse Resistor	AB
R3015	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA
R3016	VRD-RA2BE4R7J	J	4.7 1/8W Carbon	AA
R3019	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA
R3020	VRD-RA2BE4R7J	J	4.7 1/8W Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P3001	QPLGN0741CEZZ	J	Plug 7-pin, (DA)	AC
P3002	QPLGN0441CEZZ	J	Plug 4-pin, (DD)	AB
	QCNW-1648PEZZ	R	Connecting Wire, (DA)	AH

—— End of PWB-T ——

PWB-C DUNTK4811TEV1/V2
Y/C UNIT

INTEGRATED CIRCUITS

Ref. No.	Part No.	★	Description	Code
IC2201	VHiHA8285BF-1	J	Y/C Processor	AW
IC2202	VHiMSM7401R-1	J	1H Delay	AG

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q2201	VS2SA1037KQ-1	J	2SA1037K(Q)	AA
Q2202	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2203	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2204	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2205	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2206	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2207	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2212	VSDTC144ES/-1	J	DTC144ES	AB
Q2213	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2215	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2216	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2217	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q2218	VS2SA1037KQ-1	J	2SA1037K(Q)	AA
Q2219	VS2C1740SQR1E	J	2SC1740S(Q.R)	AC
Q2220	VSDTC144EK/-1	J	DTC144EK	AB
Q2223	VSDTC144ES/-1	J	DTC144ES	AB
Q5501	VS2SC2735//1E	J	2SC2735	AC
Q5506	VSDTA144EK/-1	J	DTA144EK	AC
Q5507	VSDTC144EK/-1	J	DTC144EK	AB
Q5508	VSDTA144EK/-1	J	DTA144EK	AC
Q5509	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q5510	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q5512	VS2C1740SQR1E	J	2SC1740S(Q.R)	AC
Q5513	VS2SA1037KQ-1	J	2SA1037K(Q)	AA
Q5514	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q5517	VS2SC2412KQ-1	J	2SC2412K(Q)	AA

DIODES

Ref. No.	Part No.	★	Description	Code
D2201	VHD1SS119//-1	J	1SS119	AB
D2205	VHD1SS119//-1	J	1SS119	AB
D2206	VHD1SS119//-1	J	1SS119	AB
D5501	VHD1SS119//-1	J	1SS119	AB
D5502	VHD1SS119//-1	J	1SS119	AB
D5503	VHD1SS119//-1	J	1SS119	AB

PACKAGED CIRCUITS

Ref. No.	Part No.	★	Description	Code
X2201	RCRSB0121GEZZ	J	Crystal, 8.93 MHz	AH
X5501	RCRSB0168GEZZ	J	Crystal, 4.43 MHz	AF
X5502	RCRSB0087GEZZ	J	Crystal, 3.58 MHz	AF

COIL AND TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
DL5501	RCiLZ0340GEZZ	J	Delay Line	AM
DL5502	RCiLZ0330GEZZ	J	Delay Line	AL
FL5501	RCiLF0245GEZZ	J	Filter, VCO	AD
L2202	VP-XF151K0000	J	Coil, 150μH	AB
L2203	VP-XF120K0000	J	Coil, 12μH	AB
L2204	VP-XF330K0000	J	Coil, 33μH	AB
L2205	VP-XF120K0000	J	Coil, 12μH	AB
L2206	VP-XF150K0000	J	Coil, 15μH	AB
L2207	VP-XF470K0000	J	Coil, 47μH	AB
L2208	VP-XF120K0000	J	Coil, 12μH	AB
L2209	VP-XF151K0000	J	Coil, 150μH	AB
L2210	VP-XF680K0000	J	Coil, 68μH	AB
L2211	VP-XF820K0000	J	Coil, 82μH	AB
L2212	VP-XF100K0000	J	Coil, 10μH	AB
L2214	VP-DF221K0000	J	Coil, 220μH	AB
L2215	VP-DF221K0000	J	Coil, 220μH	AB
L2216	VP-DF221K0000	J	Coil, 220μH	AB
L2217	VP-XF560K0000	J	Coil, 56μH	AB
L2218	VP-XF101K0000	J	Coil, 100μH	AB
L2219	VP-XF560K0000	J	Coil, 56μH	AB
L5503	VP-XF181K0000	J	Coil, 180μH	AB
L5504	VP-MK561K0000	J	Coil, 560μH	AB
L5505	VP-DF221K0000	J	Coil, 220μH	AB
L5506	VP-DF221K0000	J	Coil, 220μH	AB
L5507	VP-XF3R9K0000	J	Coil, 3.9μH	AB
L5508	VP-DF221K0000	J	Coil, 220μH	AB
L5509	VP-XF180K0000	J	Coil, 18μH	AB

CONTROLS

Ref. No.	Part No.	★	Description	Code
R2201	RVR-M4417GEZZ	J	22k(B) PB-Y Level	AB
R2202	RVR-M4417GEZZ	J	22k(B) EE Level	AB
R2203	RVR-M4417GEZZ	J	22k(B) White Clip	AB
R2204	RVR-M4415GEZZ	J	10k(B) Deviation	AB
R2205	RVR-M4374GEZZ	J	22k(B) Carrier	AB

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C2201	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C2202	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C2203	VCKYCY1HB391K	J	390p 50V Ceramic	AA
C2204	VCCCCY1HH150J	J	15p 50V Ceramic	AA
C2205	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2206	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2207	VCCSD41HL680J	J	68p 50V Ceramic	AA
C2208	VCCCPA1HH820J	J	82p 50V Ceramic	AA
C2209	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2210	VCCCCY1HH150J	J	15p 50V Ceramic	AA
C2211	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2212	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2213	VCCCCY1HH470J	J	47p 50V Ceramic	AA
C2214	VCCCCY1HH101J	J	100p 50V Ceramic	AA

PWB-C DUNTK4811TEV1/V2 Y/C UNIT (Continued)

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C2215	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2216	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C2217	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C2218	VCKYCY1HB391K	J	390p 50V Ceramic	AA
C2221	VCCCCY1HH820J	J	82p 50V Ceramic	AA
C2222	VCKYCY1HB471K	J	470p 50V Ceramic	AA
C2223	VCCCCY1HH680J	J	68p 50V Ceramic	AA
C2224	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2225	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2226	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C2227	RC-KZ0017GEZZ	J	0.047 50V Ceramic	AA
C2228	VCEAGA1HW335M	J	3.3 50V Electrolytic	AB
C2229	VCEAEA1CW336M	J	33 16V Electrolytic	AB
C2230	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2232	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C2233	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C2234	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C2235	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2236	VCEAGA1AW476M	J	47 10V Electrolytic	AA
C2237	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2238	VCCCCY1HH120J	J	12p 50V Ceramic	AA
C2239	VCCCCY1HH151J	J	150p 50V Ceramic	AA
C2240	VCCCCY1HH121J	J	120p 50V Ceramic	AA
C2241	VCCCCY1HH221J	J	220p 50V Ceramic	AA
C2242	RC-KZ0017GEZZ	J	0.047 50V Ceramic	AA
C2243	RC-KZ0017GEZZ	J	0.047 50V Ceramic	AA
C2244	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2245	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C2246	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2247	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C2248	VCCCCY1HH5R0C	J	5p 50V Ceramic	AA
C2249	VCCCCY1HH560J	J	56p 50V Ceramic	AA
C2250	VCEAGA1HW475M	J	4.7 50V Electrolytic	AB
C2251	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2252	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C2253	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C2254	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C2255	VCCCCY1HH181J	J	180p 50V Ceramic	AA
C2257	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2259	VCCCCY1HH470J	J	47p 50V Ceramic	AA
C2260	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C2261	VCKYCY1HB391K	J	390p 50V Ceramic	AA
C2262	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2263	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2264	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2267	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C2268	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C2269	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C2272	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2273	VCKYCY1HB681K	J	680p 50V Ceramic	AA
C2274	VCCCCY1HH101J	J	100p 50V Ceramic	AA

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C2280	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2281	VCE9EA1CW226M	J	22 16V Elect. (N.P)	AC
C2284	VCCCCY1HH470J	J	47p 50V Ceramic	AA
C2285	VCCCCY1HH100D	J	10p 50V Ceramic	AA
C2286	RC-KZ0017GEZZ	J	0.047 50V Ceramic	AA
C5501	VCEAGA1AW476M	J	47 10V Electrolytic	AA
C5502	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5503	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5507	VCKYCY1HB332K	J	3300p 50V Ceramic	AA
C5509	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5510	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5511	VCCCCY1HH7R0D	J	7p 50V Ceramic	AA
C5512	VCKYCY1HF333Z	J	0.033 50V Ceramic	AA
C5513	VCKYCY1HB332K	J	3300p 50V Ceramic	AA
C5514	RC-KZ0017GEZZ	J	0.047 50V Ceramic	AA
C5515	VCCSPA1HL271J	J	270p 50V Ceramic	AA
C5516	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5517	VCCCCY1HH7R0D	J	7p 50V Ceramic	AA
C5518	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C5519	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5520	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5521	VCCCCY1HH180J	J	18p 50V Ceramic	AA
C5522	VCCCCY1HH560J	J	56p 50V Ceramic	AA
C5523	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5527	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C5528	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5529	VCCCPA1HH4R0C	J	4p 50V Ceramic	AA
C5530	VCCCCY1HH330J	J	33p 50V Ceramic	AA
C5531	VCCCCY1HH180J	J	18p 50V Ceramic	AA
C5532	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5533	VCEAGA1AW476M	J	47 10V Electrolytic	AA
C5534	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5535	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5536	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5537	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5543	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C5546	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C5547	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5559	VCKYCY1HF223Z	J	0.022 50V Ceramic	AB
C5560	VCEAEA1HW104M	J	0.1 50V Electrolytic	AB
C5563	VCCCCY1HH7R0D	J	7p 50V Ceramic	AA
C5566	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C5567	VCEAGA1HW474M	J	0.47 50V Electrolytic	AA
C5583	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R2201	*See Controls*			
R2202	*See Controls*			
R2203	*See Controls*			
R2204	*See Controls*			
R2205	*See Controls*			
R2207	VRD-RA2BE681J	J	680 1/8W Carbon	AA
R2208	VRD-RA2BE333J	J	33k 1/8W Carbon	AA

PWB-C DUNTK4811TEV1/V2
Y/C UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R2209	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R2210	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2211	VRS-CY1JF392J	J	3.9k 1/16W Metal Oxide	AA
R2212	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2213	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2214	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2215	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2216	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R2217	VRD-RA2BE151J	J	150 1/8W Carbon	AA
R2218	VRD-RA2BE273J	J	27k 1/8W Carbon	AA
R2219	VRS-CY1JF183J	J	18k 1/16W Metal Oxide	AA
R2220	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2221	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2222	VRS-CY1JF392J	J	3.9k 1/16W Metal Oxide	AA
R2223	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2224	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2225	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2226	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2227	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2228	VRS-CY1JF181J	J	180 1/16W Metal Oxide	AA
R2229	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R2230	VRS-CY1JF273J	J	27k 1/16W Metal Oxide	AA
R2231	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R2232	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R2233	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R2234	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R2235	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R2236	VRS-CY1JF471J	J	470 1/16W Metal Oxide	AA
R2241	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2242	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R2243	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R2244	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2246	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R2248	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R2249	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R2250	VRS-CY1JF682J	J	6.8k 1/16W Metal Oxide	AA
R2251	VRS-CY1JF273J	J	27k 1/16W Metal Oxide	AA
R2252	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R2253	VRS-CY1JF470J	J	47 1/16W Metal Oxide	AA
R2254	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R2255	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R2256	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R2257	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R2258	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R2259	VRS-CY1JF391J	J	390 1/16W Metal Oxide	AA
R2260	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R2261	VRS-CY1JF393J	J	39k 1/16W Metal Oxide	AA
R2262	VRS-CY1JF393J	J	39k 1/16W Metal Oxide	AA
R2263	VRS-CY1JF470J	J	47 1/16W Metal Oxide	AA
R2264	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2265	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R2267	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R2268	VRS-CY1JF272J	J	2.7k 1/16W Metal Oxide	AA
R2269	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R2270	VRS-CY1JF272J	J	2.7k 1/16W Metal Oxide	AA
R2271	VRS-CY1JF474J	J	470k 1/16W Metal Oxide	AA
R2272	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2273	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R2274	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R2280	VRS-CY1JF821J	J	820 1/16W Metal Oxide	AA
R2281	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R2282	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R2283	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R2284	VRS-CY1JF221J	J	220 1/16W Metal Oxide	AA
R2288	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R2289	VRD-RA2BE154J	J	150k 1/8W Carbon	AA
R5502	VRS-CY1JF122J	J	1.2k 1/16W Metal Oxide	AA
R5503	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R5507	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R5513	VRS-CY1JF272J	J	2.7k 1/16W Metal Oxide	AA
R5514	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R5515	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R5516	VRD-RA2BE223J	J	22k 1/8W Carbon	AA
R5517	VRD-RA2BE184J	J	180k 1/8W Carbon	AA
R5518	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R5519	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R5520	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R5521	VRS-CY1JF392J	J	3.9k 1/16W Metal Oxide	AA
R5522	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R5523	VRS-CY1JF332J	J	3.3k 1/16W Metal Oxide	AA
R5524	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R5525	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R5530	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R5531	VRS-CY1JF221J	J	220 1/16W Metal Oxide	AA
R5532	VRS-CY1JF271J	J	270 1/16W Metal Oxide	AA
R5533	VRS-CY1JF122J	J	1.2k 1/16W Metal Oxide	AA
R5534	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R5535	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R5536	VRS-CY1JF821J	J	820 1/16W Metal Oxide	AA
R5537	VRD-RA2BE331J	J	330 1/8W Carbon	AA
R5538	VRS-CY1JF821J	J	820 1/16W Metal Oxide	AA
R5539	VRS-CY1JF271J	J	270 1/16W Metal Oxide	AA
R5540	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R5541	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R5542	VRD-RA2BE153J	J	15k 1/8W Carbon	AA
R5543	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R5551	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R5561	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R5562	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R5563	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R5580	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R5581	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R5582	VRS-CY1JF471J	J	470 1/16W Metal Oxide	AA
R5590	VRD-RA2BE681J	J	680 1/8W Carbon	AA
R5591	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA

PWB-C DUNTK4811TEV1/V2 Y/C UNIT (Continued)

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
	QPLGN0473GEZZ	J	Plug 4-pin, TP2201~2204	AC
	QPLGN0273GEZZ	J	Plug 2-pin, TP2205~2206	AA
	QPLGN0252GEZZ	J	Plug 2-pin, TP5501~5502	AA
SC2201	QSOCN0979GEZZ	J	Socket 9-pin, (CA)	AB
SC2202	QSOCN0779GEZZ	J	Socket 7-pin, (CB)	AC
SC2203	QSOCN0679GEZZ	J	Socket 6-pin, (CC)	AC
SC2204	QSOCN1079GEZZ	J	Socket 10-pin, (CD)	AC
SC2205	QSOCN1270REZZ	J	Socket 12-pin, (CE)	AC

—— End of PWB-C ——

PWB-E DUNTK4810TEV1/V2 VCR MAIN UNIT

INTEGRATED CIRCUITS

Ref. No.	Part No.	★	Description	Code
IC5601	VHiBA7025F/-1	J	SECAM Detector	AH
IC6601	VHiBA7795LS-1	J	Audio REC/PB Amp.	AG
IC7701	VHiBA15218F1E	J	Capstan Motor and Drum Motor Control	AF
IC8801	RH-iX2522CEZZ	R	System Control Drum, Capstan Servo	BA
IC8802	VHiPST529D2-1	J	Reset	AD
IC8803	VHiBA6209//1E	J	Loading Motor Driver	AG
IC9901	VHiNJM29L05-1	J	NJM2930L05, AT 5V Generator	AE

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q2301	VS2SA933SQR1E	J	2SA933S(Q,R)	AB
Q2302	VSDTA124EK/-1	J	DTA124EK	AB
Q5601	VSDTC144EK/-1	J	DTC144EK	AB
Q5602	VSDTC144EK/-1	J	DTC144EK	AB
Q5603	VSDTC144ES/-1	J	DTC144ES	AB
Q5604	VSDTA124EK/-1	J	DTA124EK	AB
Q5606	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q6601	VS2C1740SQR1E	J	2SC1740S(Q,R)	AC
Q6602	VS2C1740SQR1E	J	2SC1740S(Q,R)	AC
Q6603	VS2SD1812Q/-1	J	2SD1812(Q)	AC
Q6604	VSDTC144ES/-1	J	DTC144ES	AB
Q6605	VSDTC144EK/-1	J	DTC144EK	AB
Q6606	VSDTA124ES/-1	J	DTA124ES	AB
Q6607	VS2SD655-DE1E	J	2SD655(D,E)	AC
Q7701	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q7704	VS2SA933SQR1E	J	2SA933S(Q,R)	AB
Q7706	VS2SA1037KQ-1	J	2SA1037K(Q)	AA
Q7707	VS2SA1037KQ-1	J	2SA1037K(Q)	AA
Q8801	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q8802	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q8803	VS2SC2001LK-1	J	2SC2001	AA
Q8804	VSDTC144EK/-1	J	DTC144EK	AB
Q8805	VSDTC144EK/-1	J	DTC144EK	AB
Q8806	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q8807	VSDTA144EK/-1	J	DTA144EK	AB
Q8808	VS2C1740SQR1E	J	2SC1740S(Q,R)	AC
Q8809	VS2SC2412KQ-1	J	2SC2412K(Q)	AA
Q8810	VSDTC124EK/-1	J	DTC124EK	AB
Q8813	VS2SA933SQR1E	J	2SA933S(Q,R)	AB
Q8814	VSDTA144ES/-1	J	DTA144ES	AB
Q8815	VS2C1740SQR1E	J	2SC1740S(Q,R)	AC
Q9901	VSDTC144ES/-1	J	DTC144ES	AB
Q9903	VS2SC1827//2E	J	2SC1827(G,B)	AF
Q9904	VSDTC144ES/-1	J	DTC144ES	AB
Q9905	VS2SA950-Y/1E	J	2SA950(Y)	AD
Q9906	VSDTC144ES/-1	J	DTC144ES	AB
Q9907	VS2SA950-Y/1E	J	2SA950(Y)	AD

PWB-E DUNTK4810TEV1/V2
VCR MAIN UNIT (Continued)

DIODES

Ref. No.	Part No.	★	Description	Code
D5601	VHD1SS119//-1	J	1SS119	AB
D5602	VHD1SS119//-1	J	1SS119	AB
D5603	VHD1SS119//-1	J	1SS119	AB
D5604	VHD1SS119//-1	J	1SS119	AB
D5607	VHD1SS119//-1	J	1SS119	AB
D6604	VHD1SS119//-1	J	1SS119	AB
D7701	VHD1SS119//-1	J	1SS119	AB
D7702	VHD1SS119//-1	J	1SS119	AB
D7703	VHD1SS119//-1	J	1SS119	AB
D7704	VHD1SS119//-1	J	1SS119	AB
D7705	VHD1SS119//-1	J	1SS119	AB
D7706	VHD1SS119//-1	J	1SS119	AB
D7707	VHD1SS119//-1	J	1SS119	AB
D7708	VHD1A3-F///-1	J		AA
	or			
	RH-DX0052GEZZ	J		AB
D8801	VHD1SS119//-1	J	1SS119	AB
D8802	VHD1SS119//-1	J	1SS119	AB
D8803	VHD1SS119//-1	J	1SS119	AB
D8804	VHD1SS119//-1	J	1SS119	AB
D8805	VHD1SS119//-1	J	1SS119	AB
D8806	VHD1SS119//-1	J	1SS119	AB
D8807	VHD1SS119//-1	J	1SS119	AB
D9901	VHD1SS119//-1	J	1SS119	AB
D9902	VHD1SS119//-1	J	1SS119	AB
D9903	RH-EX0616GEZZ	J	Zener Diode	AA
D9904	VHD1SS119//-1	J	1SS119	AB
D9905	VHD1SS119//-1	J	1SS119	AB
D9906	VHD1SS119//-1	J	1SS119	AB

PACKAGED CIRCUIT

Ref. No.	Part No.	★	Description	Code
X8801	RCRSB0128GEZZ	J	Crystal, 8 MHz	AF

COIL AND TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
FL5601	RFiLC0120GEZZ	J	Filter	AD
L2301	VP-DF221K0000	J	Coil, 220μH	AB
L5601	VP-DF221K0000	J	Coil, 220μH	AB
L5602	VP-YF153J0000	J	Coil, 15mH	AC
L5603	VP-XF101K0000	J	Coil, 100μH	AB
L6601	VP-YF822J0000	J	Coil, 8.2mH	AC
L6602	VP-DF221K0000	J	Coil, 220μH	AB
T6601	RTRNH0053GEZZ	J	Transformer	AE

CONTROLS

Ref. No.	Part No.	★	Description	Code
R6634	RVR-M4421GEZZ	J	100k(B) Bias Adj.	AB
R7701	RVR-M4421GEZZ	J	100k(B) PG Adj.	AB

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C2301	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C2302	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2305	VCKYD41HB471K	J	470p 50V Ceramic	AA
C5601	VCFYSA1HB273J	J	0.027 50V M. Polyester	AA
C5602	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5603	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C5604	VCEAGA1HW224M	J	0.22 50V Electrolytic	AA
C5605	VCEAGA1CW336M	J	33 16V Electrolytic	AB
C5606	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5607	VCEAEA1CW107M	J	100 16V Electrolytic	AC
C5610	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5611	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5612	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C5613	VCCCCY1HH100D	J	10p 50V Ceramic	AA
C5614	VCCCPA1HH330J	J	33p 50V Ceramic	AA
C6601	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C6603	VCEAGA1HW335M	J	3.3 50V Electrolytic	AB
C6604	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C6605	VCFYSA1HB123J	J	0.012 50V M. Polyester	AA
C6606	VCKYD41CX392N	J	3900p 16V Ceramic	AB
C6607	VCEAGA1CW107M	J	100 16V Electrolytic	AB
C6608	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C6610	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C6611	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C6612	VCFYSA1HB183J	J	0.018 50V M. Polyester	AA
C6614	VCCCCY1HH151J	J	150p 50V Ceramic	AA
C6615	VCCCCY1HH151J	J	150p 50V Ceramic	AA
C6616	VCKYD41HB271K	J	270p 50V Ceramic	AA
C6617	VCCCCY1HH390J	J	39p 50V Ceramic	AA
C6618	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C6619	VCKYD41HB331K	J	330p 50V Ceramic	AA
C6620	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C6621	VCEAGA1CW476M	J	47 16V Electrolytic	AB
C6622	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C6623	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C6624	VCQPSA2AA562J	J	5600p 100V Polypro Film	AC
C6625	VCCCCY1HH221J	J	220p 50V Ceramic	AA
C6626	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C6631	VCFYSA1HB103J	J	0.01 50V M. Polyester	AA
C6632	VCFYSA1HB473J	J	0.047 50V M. Polyester	AA
C6633	VCEAEA1CW476M	J	47 16V Electrolytic	AB
C7701	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C7702	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7703	VCE9EA1HW105M	J	1 50V Elect. (N.P)	AC
C7704	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C7705	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C7707	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C7708	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C7709	VCKYCY1HB681K	J	680p 50V Ceramic	AA
C7710	VCE9EA1HW105M	J	1 50V Elect. (N.P)	AC
C7711	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C7712	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7713	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C7714	VCE9EA1HW225M	J	2.2 50V Elect. (N.P)	AB

PWB-E DUNTK4810TEV1/V2
VCR MAIN UNIT (Continued)

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C7715	VCE9EA1HW225M	J	2.2 50V Elect. (N.P)	AB
C7716	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7717	VCFYSA1HB153J	J	0.015 50V M. Polyester	AA
C7718	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C7719	VCCCCY1HH221J	J	220p 50V Ceramic	AA
C7720	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C7721	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C7722	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C7723	VCEAGA1HW225M	J	2.2 50V Electrolytic	AB
C7724	VCFYSA1HB104J	J	0.1 50V M. Polyester	AB
C7725	VCEAGA0JW107M	J	100 6.3V Electrolytic	AB
C7727	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7728	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7729	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7730	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C7731	VCEAGA1CW226M	J	22 16V Electrolytic	AB
C7732	VCEAGA0JW107M	J	100 6.3V Electrolytic	AB
C7734	VCKYD41CY103N	J	0.01 16V Ceramic	AA
C7735	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C7736	VCFYSA1HB334J	J	0.33 50V M. Polyester	AB
C7737	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C7738	VCFYSA1HB103J	J	0.01 50V M. Polyester	AA
C7739	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C7741	VCKYD41CX332N	J	3300p16V Ceramic	AA
C7751	VCKYPA1HB102K	J	1000p50V Ceramic	AA
C8801	VCE9EA1HW105M	J	1 50V Elect. (N.P)	AC
C8802	VCEAGA1EW476M	J	47 25V Electrolytic	AB
C8803	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C8804	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8805	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8806	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8807	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8808	VCEAGA1EW107M	J	100 25V Electrolytic	AD
C8809	RC-KZ0019GEZZ	J	0.1 25V Ceramic	AA
C8810	VCFYSA1HB473J	J	0.047 50V M. Polyester	AA
C8811	VCKYD41CX222N	J	2200p16V Ceramic	AA
C8812	VCEAGA1HW105M	J	1 50V Electrolytic	AC
C8813	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8814	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8815	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8817	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8818	VCE9EA1HW105M	J	1 50V Elect. (N.P)	AC
C8819	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8820	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8821	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8822	VCFYSA1HB104J	J	0.1 50V M. Polyester	AB
C8823	VCEAGA0JW476M	J	47 6.3V Electrolytic	AB
C8824	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C8826	VCEAGA1CW106M	J	10 16V Electrolytic	AA
C8827	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8828	VCKYCY1HB102K	J	1000p50V Ceramic	AA

CAPACITORS (Continued)

Ref. No.	Part No.	★	Description	Code
C8829	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8830	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C8831	VCEAGA1HW225M	J	2.2 50V Electrolytic	AB
C8832	VCCCCY1HH220J	J	22p 50V Ceramic	AA
C8833	VCCCCY1HH220J	J	22p 50V Ceramic	AA
C8834	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8835	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8836	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C8843	RC-KZ0011GEZZ	J	0.1 25V Ceramic	AA
C8844	RC-KZ0011GEZZ	J	0.1 25V Ceramic	AA
C9901	VCEAGA1AW226M	J	22 10V Electrolytic	AA
C9902	VCEAGA1AW226M	J	22 10V Electrolytic	AA
C9903	VCEAGA0JW226M	J	22 6.3V Electrolytic	AA
C9904	VCEAGA0JW226M	J	22 6.3V Electrolytic	AA
C9905	VCEAGA1CW107M	J	100 16V Electrolytic	AB

RESISTORS

Ref. No.	Part No.	★	Description	Code
R2301	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R2302	VRD-RA2EE331J	J	330 1/4W Carbon	AA
R2303	VRD-RA2BE750J	J	75 1/8W Carbon	AA
R2304	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA
R5601	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R5602	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R5603	VRS-CY1JF680J	J	68 1/16W Metal Oxide	AA
R5604	VRS-CY1JF123J	J	12k 1/16W Metal Oxide	AA
R5605	VRS-CY1JF684J	J	680k 1/16W Metal Oxide	AA
R5606	VRD-RA2BE105J	J	1M 1/8W Carbon	AA
R5607	VRD-RA2BE474J	J	470k 1/8W Carbon	AA
R5608	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R5609	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R5612	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R5613	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R5614	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R5617	VRS-CY1JF122J	J	1.2k 1/16W Metal Oxide	AA
R6601	VRS-CY1JF100J	J	10 1/16W Metal Oxide	AA
R6602	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R6603	VRD-RA2BE221J	J	220 1/8W Carbon	AA
R6604	VRD-RA2BE274J	J	270k 1/8W Carbon	AA
R6605	VRS-CY1JF682J	J	6.8k 1/16W Metal Oxide	AA
R6606	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R6607	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R6608	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R6609	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R6610	VRD-RA2BE105J	J	1M 1/8W Carbon	AA
R6611	VRD-RA2BE182J	J	1.8k 1/8W Carbon	AA
R6612	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R6615	VRS-CY1JF823J	J	82k 1/16W Metal Oxide	AA
R6616	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R6617	VRS-CY1JF152J	J	1.5k 1/16W Metal Oxide	AA
R6618	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R6619	VRS-CY1JF181J	J	180 1/16W Metal Oxide	AA
R6621	VRS-CY1JF683J	J	68k 1/16W Metal Oxide	AA

PWB-E DUNTK4810TEV1/V2 VCR MAIN UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R6622	VRS-CY1JF683J	J	68k 1/16W Metal Oxide	AA
R6623	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R6624	VRS-CY1JF563J	J	56k 1/16W Metal Oxide	AA
R6625	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R6626	VRS-CY1JF332J	J	3.3k 1/16W Metal Oxide	AA
R6627	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R6628	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R6629	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R6630	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R6631	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R6632	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R6633	VRD-RA2EE4R7J	J	4.7 1/4W Carbon	AA
R6634	*See Controls*			
R6635	VRD-RA2BE153J	J	15k 1/8W Carbon	AA
R6637	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R6638	VRD-RA2BE473J	J	47k 1/8W Carbon	AA
R6639	VRS-CY1JF563J	J	56k 1/16W Metal Oxide	AA
R6640	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R6641	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R6642	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R6643	VRS-CY1JF154J	J	150k 1/16W Metal Oxide	AA
R7701	*See Controls*			
R7703	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R7704	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R7706	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R7707	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R7708	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R7709	VRS-CY1JF334J	J	330k 1/16W Metal Oxide	AA
R7710	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7711	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7712	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R7713	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R7714	VRS-CY1JF821J	J	820 1/16W Metal Oxide	AA
R7715	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R7716	VRS-CY1JF391J	J	390 1/16W Metal Oxide	AA
R7717	VRS-CY1JF182J	J	1.8k 1/16W Metal Oxide	AA
R7718	VRS-CY1JF154J	J	150k 1/16W Metal Oxide	AA
R7719	VRS-CY1JF334J	J	330k 1/16W Metal Oxide	AA
R7720	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R7721	VRS-CY1JF224J	J	220k 1/16W Metal Oxide	AA
R7722	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R7723	VRS-CY1JF684J	J	680k 1/16W Metal Oxide	AA
R7724	VRS-CY1JF224J	J	220k 1/16W Metal Oxide	AA
R7725	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R7726	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R7727	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7728	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7729	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7730	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R7731	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R7732	VRS-CY1JF563J	J	56k 1/16W Metal Oxide	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R7735	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R7736	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R7737	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R7738	VRS-CY1JF273J	J	27k 1/16W Metal Oxide	AA
R7739	VRS-CY1JF124J	J	120k 1/16W Metal Oxide	AA
R7740	VRD-RA2BE564J	J	560k 1/8W Carbon	AA
R7741	VRS-CY1JF123J	J	12k 1/16W Metal Oxide	AA
R7742	VRS-CY1JF224J	J	220k 1/16W Metal Oxide	AA
R7746	VRS-CY1JF470J	J	47 1/16W Metal Oxide	AA
R7751	VRD-RM2HD1R0J	J	1 1/2W Carbon	AA
R7752	VRD-RM2HD1R0J	J	1 1/2W Carbon	AA
R7753	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R7755	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R8801	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R8802	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R8803	VRD-RA2BE394J	J	390k 1/8W Carbon	AA
R8804	VRS-CY1JF124J	J	120k 1/16W Metal Oxide	AA
R8805	VRS-CY1JF683J	J	68k 1/16W Metal Oxide	AA
R8806	VRS-CY1JF823J	J	82k 1/16W Metal Oxide	AA
R8807	VRS-CY1JF682J	J	6.8k 1/16W Metal Oxide	AA
R8808	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8809	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8810	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8811	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8812	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8813	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8814	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8815	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8816	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
R8817	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8819	VRS-CY1JF152J	J	1.5k 1/16W Metal Oxide	AA
R8820	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R8821	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R8822	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R8823	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R8824	VRS-CY1JF273J	J	27k 1/16W Metal Oxide	AA
R8825	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R8826	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R8827	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R8829	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R8830	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8831	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R8832	VRS-CY1JF823J	J	82k 1/16W Metal Oxide	AA
R8834	VRS-CY1JF104J	J	100k 1/16W Metal Oxide	AA
R8835	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8836	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8837	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8838	VRS-CY1JF331J	J	330 1/16W Metal Oxide	AA
R8839	VRS-CY1JF331J	J	330 1/16W Metal Oxide	AA
R8840	VRS-CY1JF183J	J	18k 1/16W Metal Oxide	AA
R8841	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R8842	VRS-CY1JF331J	J	330 1/16W Metal Oxide	AA
R8843	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8844	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA

PWB-E DUNTK4810TEV1/V2
VCR MAIN UNIT (Continued)

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R8847	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8848	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8849	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8850	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R8851	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R8852	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R8853	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8854	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8855	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R8856	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R8857	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R8858	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8859	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R8860	VRS-CY1JF561J	J	560 1/16W Metal Oxide	AA
R8861	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8862	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8863	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R8864	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8865	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8866	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8867	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8868	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8869	VRS-CY1JF823J	J	82k 1/16W Metal Oxide	AA
R8870	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R8871	VRS-CY1JF393J	J	39k 1/16W Metal Oxide	AA
R8872	VRS-CY1JF153J	J	15k 1/16W Metal Oxide	AA
R8873	VRS-CY1JF183J	J	18k 1/16W Metal Oxide	AA
R8874	VRS-CY1JF152J	J	1.5k 1/16W Metal Oxide	AA
R8875	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8876	VRS-CY1JF331J	J	330 1/16W Metal Oxide	AA
R8877	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R8878	VRS-CY1JF822J	J	8.2k 1/16W Metal Oxide	AA
R8881	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8883	VRS-CY1JF473J	J	47k 1/16W Metal Oxide	AA
R8884	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R8889	VRS-CY1JF101J	J	100 1/16W Metal Oxide	AA
R8890	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R8897	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R9901	VRS-CY1JF222J	J	2.2k 1/16W Metal Oxide	AA
R9902	VRS-CY1JF101J	J	100 1/16W Metal Oxide	AA
⚠ R9903	VRG-RC2EB3R3J	J	3.3 1/4W Fuse Resistor	AB
	or			
	VRG-SC2EB3R3J	J	3.3 1/4W Fuse Resistor	AB
R9904	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R9905	VRS-CY1JF223J	J	22k 1/16W Metal Oxide	AA
R9906	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R9907	VRS-CY1JF391J	J	390 1/16W Metal Oxide	AA
R9908	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R9909	VRD-RA2BE100J	J	10 1/8W Carbon	AA
R9910	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R9911	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R9912	VRS-CY1JF472J	J	4.7k 1/16W Metal Oxide	AA
R9913	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA
R9914	VRD-RA2BE102J	J	1k 1/8W Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
FB6601	RBLN-0014GEZZ	J	Ferrite Bead	AB
	QPLGN0252GEZZ	J	Plug 2-pin, TP6601~6602	AA
P7703	QPLGN0878GEZZ	J	Plug 8-pin, (EC)	AC
P7705	QPLGN0578GEZZ	J	Plug 5-pin, (EE)	AB
P7706	QPLGN0247REZZ	J	Plug 2-pin, (EF)	AA
P7707	QPLGZ0946GEZZ	J	Plug 9-pin, (EG)	AB
P7708	QPLGZ0746GEZZ	J	Plug 7-pin, (EH)	AB
P7709	QPLGZ0646GEZZ	J	Plug 6-pin, (EI)	AB
P7710	QPLGZ1046GEZZ	J	Plug 10-pin, (EJ)	AC
P7711	QPLGN0478GEZZ	J	Plug 4-pin, (EK)	AB
P7712	QPLGN0878GEZZ	J	Plug 8-pin, (EL)	AC
P7713	QPLGN0878GEZZ	J	Plug 8-pin, (EM)	AC
P7714	QPLGN0978GEZZ	J	Plug 9-pin, (EN)	AC
P7715	QPLGN0378GEZZ	J	Plug 3-pin, (EO)	AB
P7716	QPLGN0678GEZZ	J	Plug 6-pin, (EP)	AB
SC7701	QSOCN1584REZZ	J	Socket 15-pin, (EA)	AE
SC7702	QSOCN0584REZZ	J	Socket 5-pin, (EB)	AB
SC7704	QSOCN0684REZZ	J	Socket 6-pin, (ED)	AB

—— End of PWB-E ——

PWB-H DUNTK4813TEV0
OPERATION UNIT

RESISTORS

Ref. No.	Part No.	★	Description	Code
R8101	VRD-RA2BE122J	J	1.2k 1/8W Carbon	AA
R8102	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA
R8103	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA

SWITCHES

Ref. No.	Part No.	★	Description	Code
S8101	QSW-K0079GEZZ	J	FF	AB
S8102	QSW-K0079GEZZ	J	Play	AB
S8103	QSW-K0079GEZZ	J	Rew.	AB
S8104	QSW-K0079GEZZ	J	Stop/Eject	AB

MISCELLANEOUS PART

Ref. No.	Part No.	★	Description	Code
P8101	QPLGN0278GEZZ	J	Plug 2-pin, (HA)	AA

—— End of PWB-H ——

PWB-J DUNTK4812TEV0
A/V JACK UNIT

RESISTORS

Ref. No.	Part No.	★	Description	Code
R8201	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R8202	VRD-RA2BE822J	J	8.2k 1/8W Carbon	AA
R8203	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
R8204	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R8205	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA
R8206	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R8207	VRD-RA2BE183J	J	18k 1/8W Carbon	AA
R8210	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R8211	VRD-RA2BE101J	J	100 1/8W Carbon	AA
R8212	VRD-RA2BE750J	J	75 1/8W Carbon	AA
R8213	VRD-RA2BE101J	J	100 1/8W Carbon	AA

SWITCHES

Ref. No.	Part No.	★	Description	Code
S8201	QSW-K0079GEZZ	J	Rec.	AB
S8202	QSW-K0079GEZZ	J	Channel ∧	AB
S8203	QSW-K0079GEZZ	J	Channel ∨	AB
S8204	QSW-K0079GEZZ	J	Sound Volume ∧	AB
S8205	QSW-K0079GEZZ	J	Sound Volume ∨	AB
S8206	QSW-K0079GEZZ	J	All Clear	AB

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
CN8203	QCNW-0133AJZZ	J	Connecting Wire, (JC)	AG
J8201	QJAKF0001AJZZ	J	Front A/V Jack	AH
P8201	QPLGN0678GEZZ	J	Plug 6-pin, (JA)	AB
P8202	QPLGN0478GEZZ	J	Plug 4-pin, (JB)	AB
P8204	QPLGN0378GEZZ	J	Plug 3-pin, (JD)	AB
	LHLDW1066PEKZ	J	Wire Holder, ×2 used	AC

—— End of PWB-J ——

PWB-L DUNTK4814TEV0
LED UNIT (VT-1418M)

DIODES

Ref. No.	Part No.	★	Description	Code
D8301	RH-PX0196GEZZ	J	LED, Power/Wake-Up Timer	AC
D8302	RH-PX0196GEZZ	J	LED, Rec./Timer	AC
D8303	RH-PX0192GEZZ	J	LED, Child Lock	AB
D8304	RH-PX0192GEZZ	J	LED, Dew	AB

RESISTORS

Ref. No.	Part No.	★	Description	Code
R8301	VRD-RA2BE181J	J	180 1/8W Carbon	AA
R8302	VRD-RA2BE151J	J	150 1/8W Carbon	AA
R8303	VRD-RA2BE271J	J	270 1/8W Carbon	AA
R8304	VRD-RA2BE221J	J	220 1/8W Carbon	AA
R8305	VRD-RA2BE271J	J	270 1/8W Carbon	AA
R8306	VRD-RA2BE271J	J	270 1/8W Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P8301	QPLGN0778GEZZ	J	Plug 7-pin, (LA)	AC
	LHLDP1141AJZZ	J	LED Holder	AD

—— End of PWB-L ——

PWB-L DUNTK4817TEV0
LED UNIT (VT-2118M)

DIODES

Ref. No.	Part No.	★	Description	Code
D8301	RH-PX0196GEZZ	J	LED, Power/Wake-Up Timer	AC
D8302	RH-PX0196GEZZ	J	LED, Rec./Timer	AC
D8303	RH-PX0192GEZZ	J	LED, Child Lock	AB
D8304	RH-PX0192GEZZ	J	LED, Dew	AB

RESISTORS

Ref. No.	Part No.	★	Description	Code
R8301	VRD-RA2BE181J	J	180 1/8W Carbon	AA
R8302	VRD-RA2BE151J	J	150 1/8W Carbon	AA
R8303	VRD-RA2BE271J	J	270 1/8W Carbon	AA
R8304	VRD-RA2BE221J	J	220 1/8W Carbon	AA
R8305	VRD-RA2BE271J	J	270 1/8W Carbon	AA
R8306	VRD-RA2BE271J	J	270 1/8W Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P8301	QPLGN0778GEZZ	J	Plug 7-pin, (LA)	AC
	LHLDP1141AJZZ	J	LED Holder	AD

—— End of PWB-L ——

PWB-X DUNTK4815TEV1 HEAD AMP. UNIT

INTEGRATED CIRCUIT

Ref. No.	Part No.	★	Description	Code
IC3301	VHiTEA5705/-1	J	PB/Rec. Amp.	AL

DIODES

Ref. No.	Part No.	★	Description	Code
D3301	VHD1SS119//-1	J	1SS119	AB
D3302	VHD1SS119//-1	J	1SS119	AB
D3303	VHD1SS119//-1	J	1SS119	AB
D3304	VHD1SS119//-1	J	1SS119	AB

COILS

Ref. No.	Part No.	★	Description	Code
L3301	VP-MK101K0000	J	Coil, 100μH	AB
L3302	VP-MK101K0000	J	Coil, 100μH	AB

CAPACITORS

Ref. No.	Part No.	★	Description	Code
C3301	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3302	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3303	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3304	VCKYD41HF104Z	J	0.1 50V Ceramic	AA
C3305	VCKYD41HF104Z	J	0.1 50V Ceramic	AA
C3306	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3307	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3308	VCKYD41HF104Z	J	0.1 50V Ceramic	AA
C3309	VCKYD41HF104Z	J	0.1 50V Ceramic	AA
C3310	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3311	VCKYCY1EF223Z	J	0.022 25V Ceramic	AA
C3312	VCFYSA1HB223J	J	0.022 50V M. Polyester	AA
C3313	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C3315	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C3316	VCKYCY1HB472K	J	4700p50V Ceramic	AA
C3317	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C3318	VCKYCY1HB102K	J	1000p50V Ceramic	AA
C3319	VCEAEA0JW476M	J	47 6.3V Electrolytic	AB
C3320	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C3321	VCEAEA1CW476M	J	47 16V Electrolytic	AB
C3322	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description	Code
R3301	VRS-CY1JF681J	J	680 1/16W Metal Oxide	AA
R3302	VRD-RA2BE681J	J	680 1/8W Carbon	AA
R3303	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R3306	VRS-CY1JF333J	J	33k 1/16W Metal Oxide	AA
R3307	VRS-CY1JF154J	J	150k 1/16W Metal Oxide	AA
R3309	VRS-CY1JF100J	J	10 1/16W Metal Oxide	AA
R3310	VRS-CY1JF122J	J	1.2k 1/16W Metal Oxide	AA
R3311	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R3312	VRS-CY1JF122J	J	1.2k 1/16W Metal Oxide	AA
R3313	VRS-CY1JF562J	J	5.6k 1/16W Metal Oxide	AA
R3314	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R3315	VRS-CY1JF103J	J	10k 1/16W Metal Oxide	AA
R3316	VRS-CY1JF102J	J	1k 1/16W Metal Oxide	AA
R3324	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R3325	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA
R3327	VRS-CY1JF000J	J	0 1/16W Metal Oxide	AA

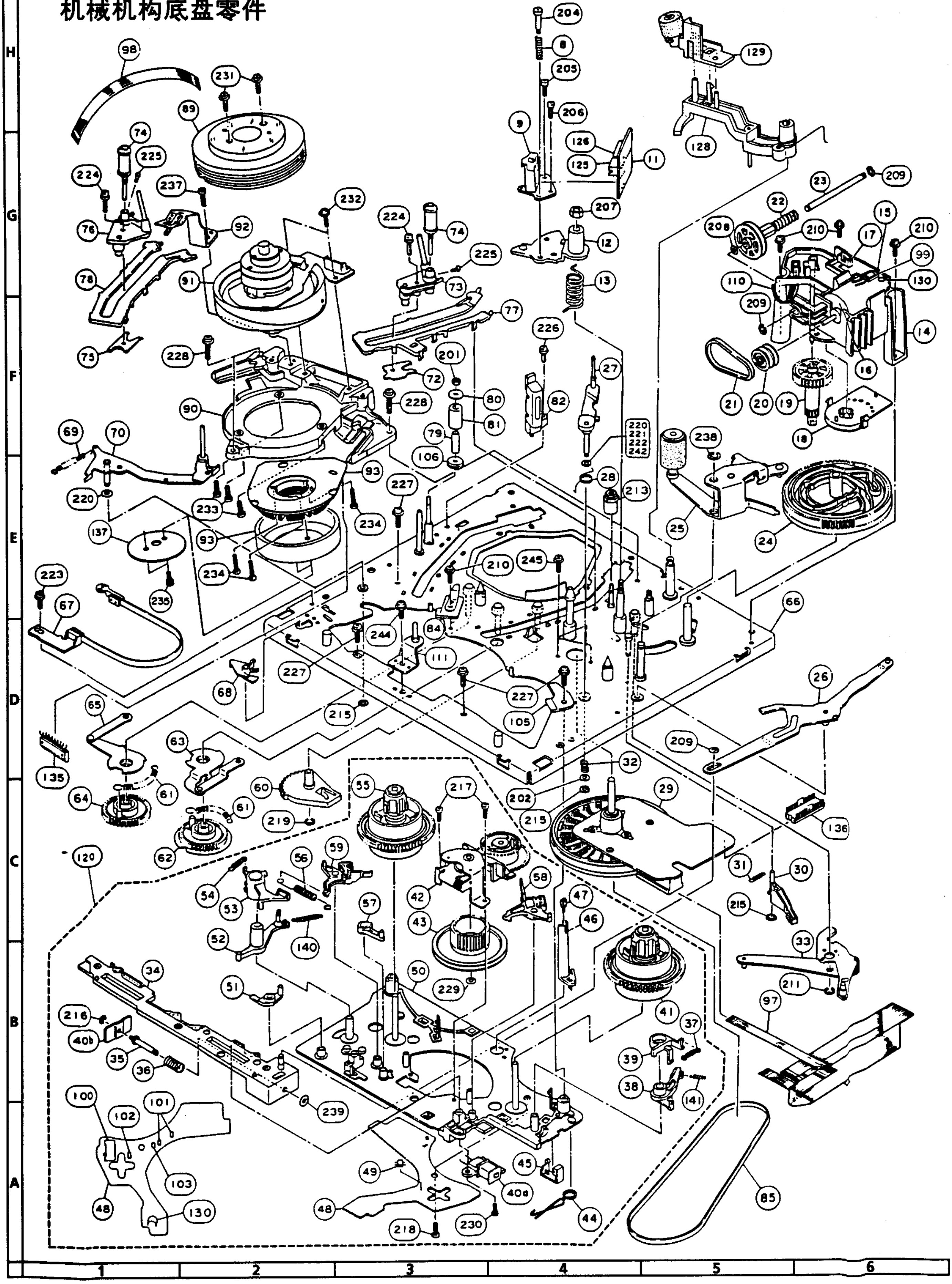
MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
SC3301	QSOCN0732REZZ	J	Socket 7-pin, (XA)	AC
SC3302	QSOCN1271REZZ	J	Socket 12-pin, (XB)	AC
SLD3301	PSLDM4372AJFW	J	Shield, Frame	AF
SLD3302	PSLDM4373AJFW	J	Shield, Cover	AE

—— End of PWB-X ——

MECHANISM CHASSIS PARTS

机械机构底盘零件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MECHANISM CHASSIS PARTS

Ref. No.	Part No.	★	Description	Code
1				
|	—— *Not Used* ——			
7				
8	MSPRC0144AJFJ	V	Azimuth Spring	AB
	or			
	MSPRC0144GEFJ	J		AB
9	RHEDU0070AJZZ	V	Audio/Control Head Ass'y	AX
	or			
	RHEDU0070GEZZ	J		AS
10	—— *Not Used* ——			
11	QPWBF3777AJZZ	V	Audio/Control Head PWB	AD
	or			
	QPWBF3777GEZZ	J		AB
12	MLEVF0292AJZZ	V	Audio/Control Head Arm	AH
	or			
	MLEVF0292GEZZ	J		AD
13	MSPRD0087AJFJ	V	Audio/Control Head Arm Spring	AC
	or			
	MSPRD0087GEFJ	J		AA
14	LHLDZ1606AJZZ	V	Loading Block Holder Ass'y	AG
	or			
	LHLDZ1606GEZZ	J		AC
15	QPWBF3842GEZZ	J	Loading Block PWB	AD
16	RMOTM1049GEZZ	J	Loading Motor	AM
17	QPLGN0880GEZZ	J	Plug, 8-pin (MG)	AC
18	QSW-R0034GEZZ	J	Cam Switch	AF
19	NGERW1032AJZZ	V	Worm Wheel	AD
	or			
	NGERW1032GEZZ	J		AC
20	NPLYV0133AJZZ	V	Loading Motor Pulley	AD
	or			
	NPLYV0133GEZZ	J		AC
21	NBLTK0058AJ00	V	Loading Belt	AC
	or			
	NBLTK0058GE00	J		AA
22	NGERW1031AJZZ	V	Worm Ass'y	AE
	or			
	NGERW1031GEZZ	J		AC
23	NSFTG0045AJFJ	V	Worm Shaft	AD
	or			
	NSFTG0045GEFJ	J		AB
24	NGERH1196GEZZ	J	Master Cam	AC
25	MLEVF0281GEZZ	J	Pinch Roller Lever Ass'y	AN
26	MLEVF0348AJZZ	V	Relay Shifter Lever	AH
	or			
	MLEVF0348GEZZ	J		AD
27	MLEVC0033GEZZ	J	Reverse Guide	AG
28	MSPRD0086AJFJ	V	Reverse Guide Spring	AB
	or			
	MSPRD0086GEFJ	J		AA
29	RMOTN2047GEZZ	J	Capstan D.D. Motor	BE
30	MLEVP0136GEZZ	J	Slow Brake Lever	AA

Ref. No.	Part No.	★	Description	Code
31	MSPRT0329GEFJ	J	Slow Brake Spring	AA
32	MSPRC0151AJFJ	V	Reverse Guide Spring	AB
	or			
	MSPRC0151GEFJ	J		AA
33	MLEVF0379AJZZ	V	Relay Gear Drive Lever	AG
	or			
	MLEVF0379GEZZ	J		AD
34	MSLiF0043GEZZ	J	Brake Shifter	AK
35	NSFTZ0068GEFD	J	Brake Lock Shaft	AC
36	MSPRC0143GEFJ	J	Absorber Plate Spring	AB
37	MSPRT0274GEFJ	J	Video Search Spring	AB
38	MLEVP0244GEZZ	J	Video Search Brake Lever	AB
39	MLEVP0131GEZZ	J	Video Search Reciprocating Lever	AC
40	RPLU-0083GEZZ	J	Brake Solenoid Ass'y	AF
41	NDAiV1060GEZZ	J	Take-Up Reel Disk Ass'y	AH
42	NGERH1128GEZZ	J	Idler Gear Ass'y	AN
43	NPLYV0134GEZZ	J	Reel Pulley	AC
44	MSPRD0085GEFJ	J	Shifter Spring	AB
45	PCOVP1018GEZZ	J	Shifter Spring Cover	AC
46	LHLDP1092GEZZ	J	Cassette LED Holder	AE
47	RH-PX0180GEZZ	J	Cassette LED	AD
48	QPWBF2977GEZZ	J	Reel Sensor PWB	AK
49	RH-PX0181GEZZ	J	Reel Sensor	AE
50	LCHSS0032GEZZ	J	Reel Block Chassis	AK
51	MLEVP0134GEZZ	J	Tension Adjusting Lever	AC
52	MLEVP0194GEZZ	J	Tension Release Lever	AB
53	MLEVP0132GEZZ	J	Back Tension Lever	AC
54	MSPRT0360GEFJ	J	Back Tension lever spring	AA
55	NDAiV1062GEZZ	J	Supply Reel Disk Ass'y	AH
56	MSPRT0336GEFJ	J	Main Brake Spring	AB
57	MLEVP0135GEZZ	J	Intermediate Lever	AC
58	MLEVP0206GEZZ	J	Main Take-Up Brake Lever	AC
59	MLEVP0205GEZZ	J	Main Supply Brake Lever	AL
60	NGERH1121GEZZ	J	Loading Relay Gear	AA
61	MSPRT0271AJFJ	V	Loading Reciprocating Spring	AC
	or			
	MSPRT0271GEFJ	J		AA
62	NGERH1120GEZZ	J	Take-Up Loading Gear	AA
63	MLEVF0304AJZZ	V	Take-Up Loading Arm Ass'y	AG
	or			
	MLEVF0304GEZZ	J		AC
64	NGERH1119GEZZ	J	Supply Loading Gear	AA
65	MLEVF0303AJZZ	V	Supply Loading Arm Ass'y	AG
	or			
	MLEVF0303GEZZ	J		AC
66	LCHSM0142AJZZ	V	Main Chassis Ass'y	AY
	or			
	LCHSM0142GEZZ	J		AU
67	LBNDK1002GEZZ	J	Tension Band Ass'y	AD
68	LHLDZ1607GEZZ	J	Tension Spring Hook Plate	AA
69	MSPRT0275AJFJ	V	Tension Spring	AC
	or			
	MSPRT0275GEFJ	J		AA

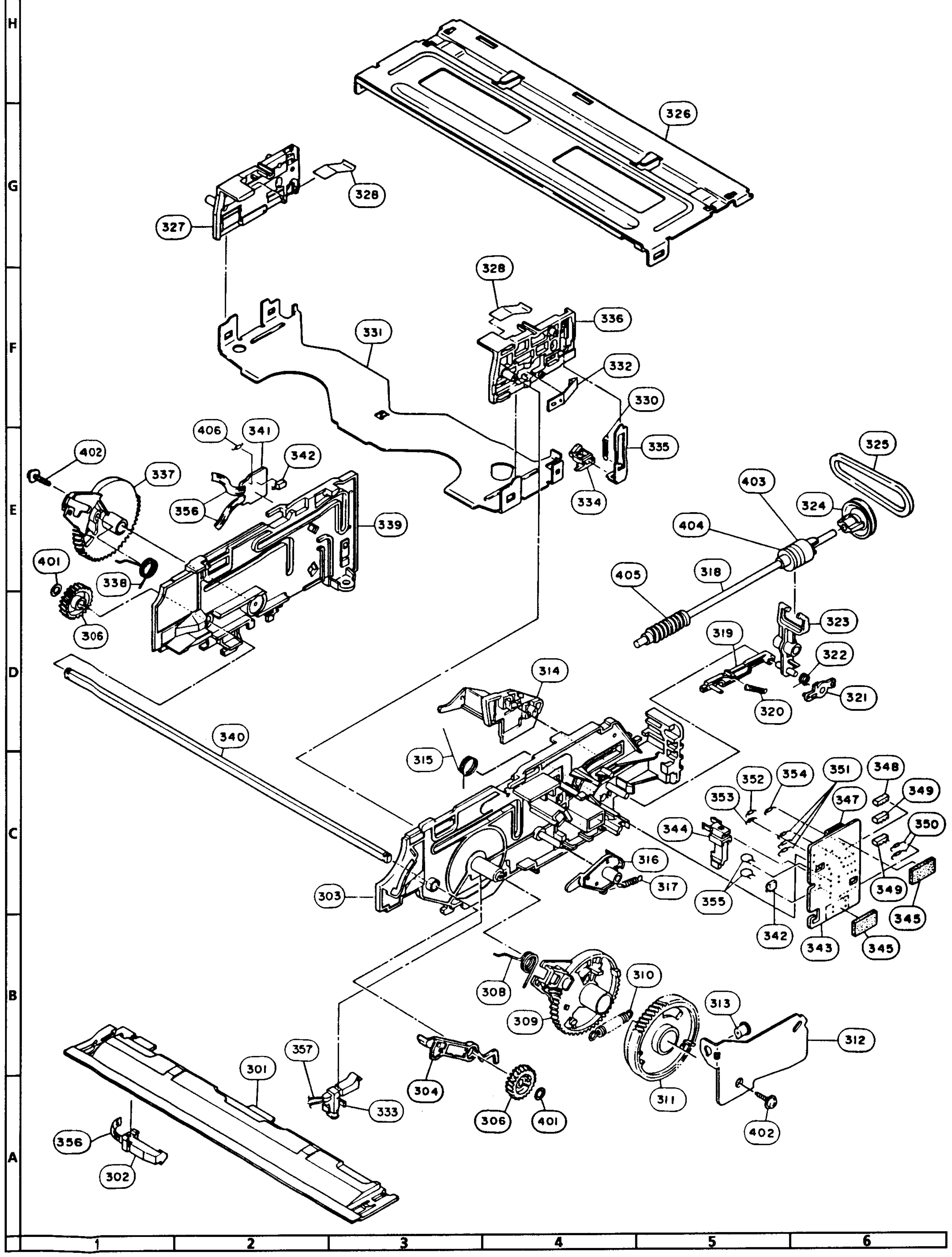
MECHANISM CHASSIS PARTS (Continued)

Ref. No.	Part No.	★	Description	Code
70	MLEVF0291AJZZ	V	Tension Arm Ass'y	AK
	or			
	MLEVF0291GEZZ	J		AF
71	—— *Not Used* ——			
72	MSLiF0049GEFW	J	Take-Up Pole Base Slider	AB
73	LPOLM0037GEZZ	J	Take-Up Pole Base Ass'y	AG
74	NROLP0104GEZZ	J	Guide Roller Ass'y	AE
75	MSLiF0048GEFW	J	Supply Pole Base Slider	AB
76	LPOLM0036GEZZ	J	Supply Pole Base Ass'y	AG
77	PGiDM0066GEZZ	J	Take-Up Loading Rail	AB
78	PGiDM0067GEZZ	J	Supply Loading Rail	AB
79	NSFTL0563GEFW	J	Supply Impedance Roller Innor	AC
80	PGiDH0031GEFW	J	Supply Impedance Roller Flange	AA
81	NROLP0084GEZZ	J	Supply Impedance Roller	AC
82	RHEDT0031AJZZ	V	Full Erase Head Ass'y	AX
	or			
	RHEDT0031GEZZ	J		AH
83	—— *Not Used* ——			
84	LANGA0054GEZZ	J	Supply Reel Retainer Ass'y	AD
85	NBLTK0059AJ00	V	Reel Belt	AD
	or			
	NBLTK0059GE00	J		AB
86	—— *Not Used* ——			
87	—— *Not Used* ——			
88	—— *Not Used* ——			
89	DDRMU0004HE22	V	Upper Drum Ass'y	BH
90	PGiDC0044GEFW	J	Drum Base	AK
91	DDRML0012HE00	J	Lower Drum Ass'y	BE
92	QBRSK0025GEZZ	J	Earth Brush Ass'y	AD
93	RMOTP1107GEZZ	J	Drum D.D. Motor Ass'y	AW
94	—— *Not Used* ——			
95	—— *Not Used* ——			
96	—— *Not Used* ——			
97	QCNW-0138AJZZ	V	Full Flat Cable	AR
98	QCNW-0139AJZZ	V	Full Flat Cable	AF
99	RDTCH0018GEZZ	J	Dew Sensor	AG
100	QSOCN0534REZZ	J	Socket, 5 pin (MF)	AC
101	VRS-TW2ED221J	J	220 1/4W Oxide Film (R8011, R8013)	AA
102	VCKYTV1HB102K	J	0.001 50V Ceramic (C8002)	AA
103	VRS-TV1JD473J	J	47k 1/16W Oxide Film (R8012)	AA
104	—— *Not Used* ——			
105	LANGA0051GEFW	J	Take-Up Reel DiskCatch Holder	AB
106	PGiDS0027GEZZ	J	Supply Impedance Roller Flange L	AA
107	—— *Not Used* ——			
108	—— *Not Used* ——			
109	—— *Not Used* ——			
110	LHLDW1033CE00	J	Wire Holder	AA
111	LPOLP0003GEZZ	J	Release Pin Bracket Ass'y	AA
112				
│	—— *Not Used* ——			
119				
120	CCHSS0032GE01	J	Reel BlockAss'y	AY
121				
│	—— *Not Used* ——			
124				
125	QPLGN0378GEZZ	J	Plug, 3 pin (MR)	AB
126	QPLGN0578GEZZ	J	Plug, 5 pin (MH)	AB
127	—— *Not Used* ——			
128	CLEVP0208GE00	J	AHC Lever Ass'y	AE
129	CLEVP0209GE01	J	AHC Roller Ass'y	AG
130	RC-KZ0019GEZZ	J	0.1 25V Ceramic (C8009)	AA
131				
│	—— *Not Used* ——			
134				
135	94SSEE0193721A	J	Drum IC	AU
136	94SSEE0193731A	J	Capstan IC	AU
137	—— *Not Used* ——			
138	—— *Not Used* ——			
139	—— *Not Used* ——			
140	MSPRT0327GEFJ	J	Tension Release Lever Spring	AA
141	MSPRT0359GEFJ	J	VS-R Auxiliary Brake Spring	AA

—— End of MECHANISM CHASSIS PARTS ——

CASSETTE HOUSING CONTROL PARTS

磁带盒室控制机构零件



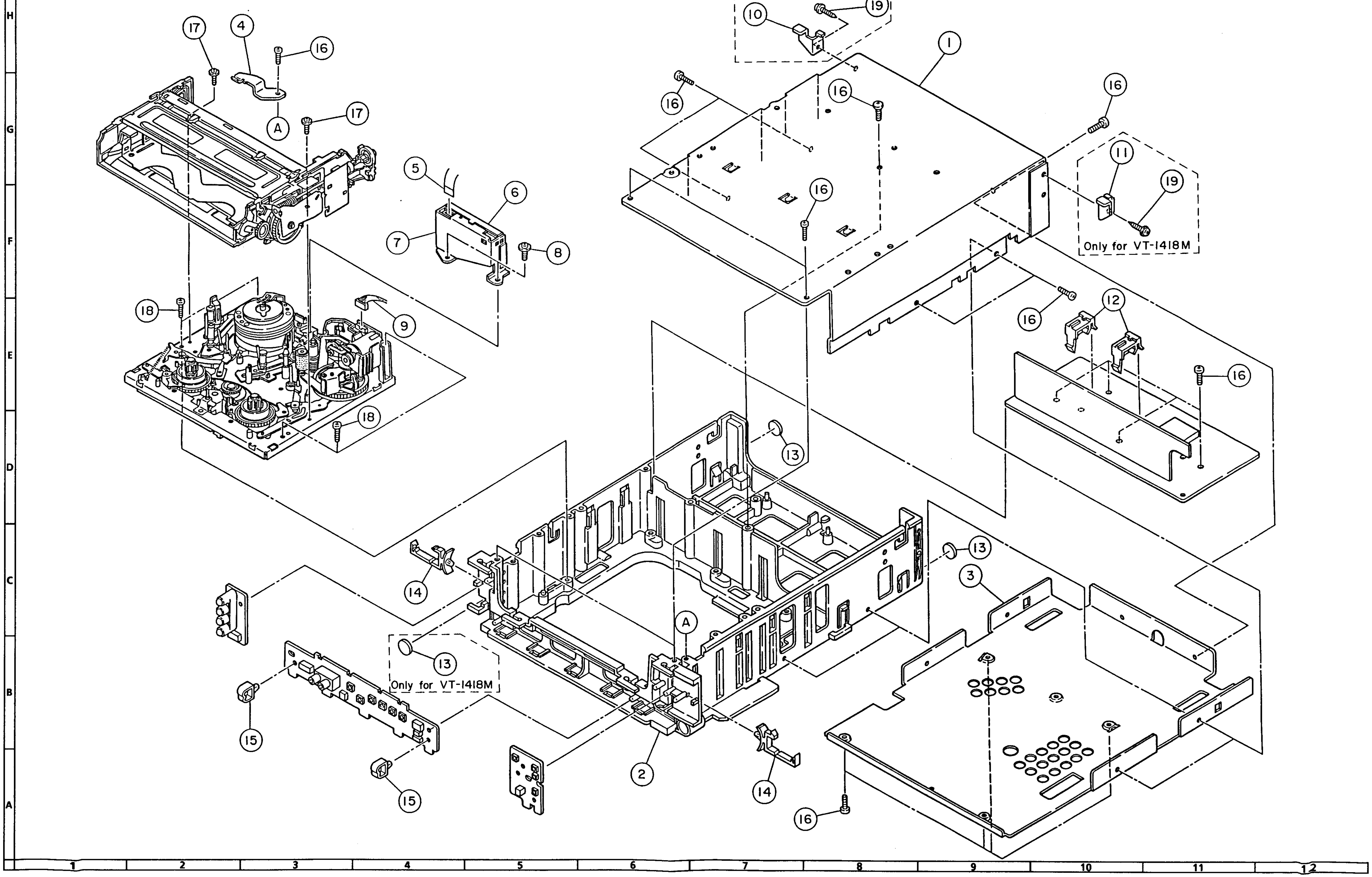
CASSETTE HOUSING CONTROL PARTS

Ref. No.	Part No.	★	Description	Code
	CHLDX3053TEV0	V	Cassette Housing Control Assembly	BD
301	PGiDM0069AJ00	V	Down Guide	AD
	or			
	PGiDM0069GE00	J		AC
302	QSW-F0034GEZZ	J	Cassette Erase Protection Switch	AC
303	LHLDX1014AJ00	V	Cassette Housing Frame (Right)	AM
	or			
	LHLDX1014GE00	J		AM
304	MARMP0052GE00	J	Cassette Open Lever	AB
306	NGERW1036GEZZ	J	Phase Gear	AA
308	MSPRD0088AJFJ	V	Drive Gear Spring (Right)	AA
	or			
	MSPRD0088GEFJ	J		AA
309	NGERW1034GEZZ	J	Drive Gear (Right)	AB
310	MSPRT0277AJFJ	V	Reciprocating Spring	AB
	or			
	MSPRT0277GEFJ	J		AA
311	NGERW1033GEZZ	J	Worm Wheel Gear	AB
312	LANGF9355AJFW	V	Worm Bracket	AC
	or			
	LANGF9355GEFW	J		AB
313	NBRGP0013GEZZ	J	Bearing	AA
314	MLEVP0142GEZZ	J	Open Lever	AA
315	MSPRD0091AJFJ	V	Open Lever Spring	AA
	or			
	MSPRD0091GEFJ	J		AA
316	MLEVP0141GEZZ	J	Switching Lever	AA
317	MSPRT0280AJFJ	V	Switching Lever Spring	AA
	or			
	MSPRT0280GEFJ	J		AA
318	NSFTD0016GEFD	J	Worm Shaft Ass'y	AC
319	MLEVP0140GEZZ	J	Clutch Lock Lever	AA
320	MSPRT0279AJFJ	V	Clutch Lock Lever Spring	AA
	or			
	MSPRT0279GEFJ	J		AA
321	MLEVP0139GEZZ	J	Clutch Release Lever	AA
322	MSPRD0092AJFJ	V	Clutch Release Lever Spring	AA
	or			
	MSPRD0092GEFJ	J		AA
323	MLEVP0138GEZZ	J	Clutch Lever	AA
324	NPLYV0135GEZZ	J	Pulley	AA
325	NBLTK0060AJ00	V	Cassette Loading Belt	AB
	or			
	NBLTK0060GE00	J		AB
326	LANGF9354AJFW	V	Upper Plate	AG
	or			
	LANGF9354GEFW	J		AD
327	LHLDX1013GE00	J	Slider Holder (L)	AB
328	MSPRP0115GEFJ	J	Cassette Spring	AB
330	MSPRT0281AJFJ	V	Slider Lock Spring	AA
	or			
	MSPRT0281GEFJ	J		AA
331	MSLiF0044AJFW	V	Slider	AM
	or			
	MSLiF0044GEFW	J		AF
332	MARMP0039GEZZ	J	Lock Release Lever	AA
333	QSW-F0037GEZZ	J	REC Switch	AD
334	MLEVP0143GEZZ	J	Slider Lock Cover	AA
335	LANGF9356GEFW	J	Slider Lock (R)	AA
336	LHLDX1012GE00	J	Slider Holder (R)	AB
337	NGERW1035GEZZ	J	Drive Gear (L)	AB
338	MSPRD0089AJFJ	V	Drive Gear Spring (L)	AA
	or			
	MSPRD0089GEFJ	J		AA
339	LHLDX1015AJ00	V	Cassette Housing Frame (Left)	AL
	or			
	LHLDX1015GE00	J		AC
340	NSFTD0015GEFD	J	Main Shaft	AD
341	QPWBF2894AJZZ	V	End Sensor PWB	AC
	or			
	QPWBF2894GEZZJ	J		AB
342	RH-PX0176GEZZ	J	Phototransistor (Q8005, 8006)	AE
343	QPWBF3194AJZZ	V	Start Sensor PWB	AD
	or			
	QPWBF3194GEZZ	J		AC
344	QSW-F0040GEZZ	J	Cassette Control Switch	AD
345	ZTAPEZ790008E	J	Rubber Mat	AA
347	QSOCN0595GEZZ	J	Socket, 5 pin (MA)	AB
348	VSDTC124ELT-1	J	Transistor (Q8007)	AA
349	VS2SA1561Q/1E	J	Transistor (Q8001, 8002)	AC
350	VRD-RA2BE153J	J	15k 1/8W Carbon (R8004, 8006)	AA
351	VRD-RA2BE223J	J	22k 1/8W Carbon (R8005, 8007, 8008)	AA
352	VRD-RA2BE103J	J	10k 1/8W Carbon (R8001)	AA
353	VRD-RA2BE472J	J	4.7k 1/8W Carbon (R8002)	AA
354	VRD-RA2BE332J	J	3.3k 1/8W Carbon (R8003)	AA
355	RC-KZ0028GEZZ	J	0.047 16V Ceramic (C8001, 8005)	AA
356	QCNW-4789AJZZ	V	Connecting Cord	AC
	or			
	QCNW-4789GEZZ	J		AF
357	QCNW-5421AJZZ	V	Connecting Cord	AC
	or			
	QCNW-5421GEZZ	J		AK
401	LX-WZ1020GE00	J	Cut Washer (4.2W-6.0-0.5)	AA
402	LX-HZ3046GEFD	J	Screw (B Tight BTN3P +6S)	AA
403	NPLYV0137GEZZ	J	Coupling	AA
404	NPLYV0136GEZZ	J	Clutch	AA
405	NGERW1037GEZZ	J	Worm	AA
406	VCKYD41CY103N	J	0.01 16V Ceramic (C8006)	AA

— End of **CASSETTE HOUSING CONTROL PARTS** —

MECHANICAL PARTS OF VCR SECTION

录象机部分的机械机构零件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SCREWS, NUTS, AND WASHERS

Ref. No.	Part No.	★	Description	Code
201	XNFSD20-16000	J	Adjusting Nut	AA
202	XWHSD26-05060	J	Washer W2.6S-6-0.5	AA
203	*—— Not Used ——*			
204	LX-BZ3095GEFD	J	AC Head Screw	AA
205	XBPSD26P06000	J	Azimuth Adjusting Screw	AA
206	LX-BZ3096GEFD	J	Tilt Adjusting Screw	AA
207	XNFSD40-31000	J	Adjusting Nut (A/C Head)	AB
208	LX-WZ1048GE00	J	Washer W3.1-5.4-0.5	AA
209	LX-WZ1041GE00	J	Washer W2.6-6-0.5 (LM)	AA
210	XHPSD26P06WS0	J	Screw C2.6P + 6S	AA
211	XRESJ30-06000	J	E-Ring-3	AA
212	*—— Not Used ——*			
213	LX-NZ3046GEFW	J	Adjusting Nut	AB
214	*—— Not Used ——*			
215	LX-WZ1003GE00	J	Washer CW2-5-0.5	AA
216	XRESJ12-03000	J	E Ring-1.2-T0.3	AA
217	XHPSD26P03000	J	Screw S2.6P + 3S (S Tight)	AA
218	XHPSD20P03000	J	Screw S2P + 3S (S Tight)	AA
219	XRESJ25-04000	J	E Ring-2.5	AA
220	XWHJZ25-05050	J	Washer W2.6P-5-0.5	AA
221	XWHJZ25-01050	J	Washer W2.6P-5-0.13	AA
222	XWHJZ25-02050	J	Washer W2.6P-5-0.25	AA
223	LX-HZ3043GEZZ	J	Screw W2.6P + 6S	AA
224	LX-BZ3099GEZZ	J	Screw WSW2P + 11S (W5)	AB
225	LX-XZ3030GEFD	J	Screw M2x4	AC
226	XHPSD26P08WS0	J	Screw C2.6P + 8S	AA
227	XJPSD26P08WS0	J	B Tight Screw C2.6 + 8S	AA
228	XHPSD30P08WS0	J	Screw C3P + 8S	AA
229	LX-WZ1040GE00	J	Washer CW2.5-6-0.5	AA
230	XJBSD20P06000	J	B Tight Screw 2P + 6S	AA
231	LX-BZ3039GEFN	J	Screw W3P + 9S-NiA232	AA
232	LX-HZ3056GEFD	J	Screw S3P + 10S + W6 + SW	AA
233	XBPSD30P08J00	J	Screw SW3P + 8S	AA
234	XBPSD26P12J00	J	Screw SW2.6 + 12S	AA
235	XBPSD30P05J00	J	Screw SW3P + 5S	AA
236	*—— Not Used ——*			
237	XHPSD30P06000	J	Screw S3P + 6S	AA
238	LX-RZ3001AEZZ	J	E Ring-3 (Curl)	AA
239	LX-WZ1042GE00	J	Washer CW2.7-7-0.5	AA
240	*—— Not Used ——*			
241	*—— Not Used ——*			
242	XWHJZ25-04050	J	Washer W2.6P-5-0.4	AA
243	*—— Not Used ——*			
244	XHPSD30P04WS0	J	Screw C3P + 4S	AA
245	XHPSD26P06000	J	Screw S2.6P + 6S	AA

—— End of SCREWS, NUTS, AND WASHERS ——

MECHANICAL PARTS OF VCR SECTION

Ref. No.	Part No.	★	Description	Code
1	PSLDM4446AJFW	V	Top Shield	AU
2	GCABB1141AJKZ	V	Main Frame	AU
3	PSLDM4440AJFW	V	Bottom Shield	AN
4	LANGF9367AJFW	V	Cassette Bracket-R	AB
5	QCNW-0160AJZZ	V	Head Amp. FFC	AF
6	PSLDM4373AJFW	V	Head Amp. Shield (Top)	AE
7	PSLDM4372AJFW	V	Head Amp. Shield (Bottom)	AF
8	LX-HZ3056GEFD	J	Screw	AA
9	QCNW-0145AJZZ	V	Loading Motor Wire	AH
10	LANGT0020PEFW	V	Chassis Bracket (R) (VT-1418M)	AD
11	LANGT0021PEFW	V	Chassis Bracket (L) (VT-1418M)	AD
12	LHLDZ1609GEZZ	J	PWB Holder	AA
13	PSPAG0011PE00	V	Spacer (VT-1418M × 3) (VT-2118M × 2)	AB
14	LHLDW1065PEKZ	V	Wire Holder	AD
15	LHLDW1066PEKZ	V	Wire Holder	AC
16	XEBSD30P12000	J	Screw (M3 × 12)	AA
17	XHPS330P06WS0	J	Screw (M3 × 6)	AA
18	XEBSD40P12000	J	Screw (M4 × 12)	AA
19	XTASD30P12000	J	Screw (M3 × 12)	AA

—— End of MECH. PARTS OF VCR SECTION ——

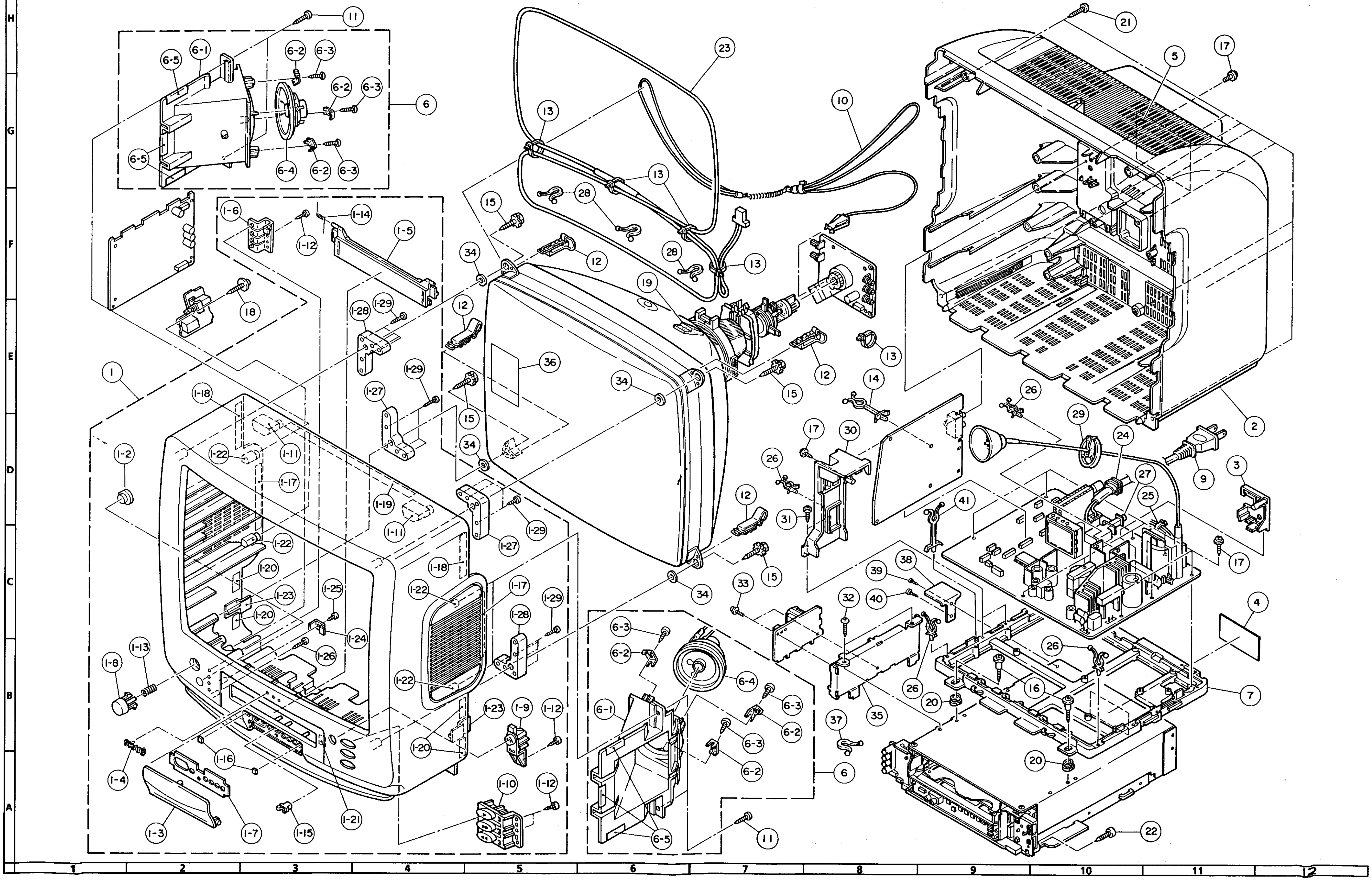
CABINET AND MECHANICAL PARTS
MODEL VT-1418M

Ref. No.	Part No.	★	Description	Code
1	CCABA2220WEV0	R	Cabinet Complete Ass'y	BD
1-1	*Not Available*	–	Cabinet-Front	—
1-2	GCOVA0051PESA	R	Cover, R/C	AD
1-3	GDORF0149PESB	R	Door	AE
1-4	HBDGB3113CESB	J	SHARP Badge	AG
1-5	HDECQ0037PESA	R	Cassette Flap-Door	AE
1-6	HDECQ0032PESA	R	LED Cover	AL
1-7	HiNDP0197PESA	R	Indicator (Indoor)	AE
1-8	JBTN-0122PESA	R	Button, Power	AE
1-9	JBTN-0123PESA	R	Button, Eject/Stop	AD
1-10	JBTN-0124PESA	R	Button, PB/FF/REW	AE
1-11	LHLDZ0040PEZZ	R	Holder, × 2	AB
1-12	LX-TZ3004CEFD	J	Screw, × 5	AA
1-13	MSPRC0005PEFW	R	Button Spring	AA
1-14	MSPRD0123AJFJ	J	Cassette Frop-Door Spring	AB
1-15	PKAi-0001PE00	R	Door Latch	AF
1-16	PSPAG0009PE00	R	Spacer, × 2	AB
1-17	PSPAH0023PE00	R	Spacer, × 2	AB
1-18	PSPAH0051PE00	R	Spacer, × 2	AC
2	GCABB2191PEKA	R	Cabinet-Rear	AZ
3	GCOVH0019PEZZ	R	AC Cord Cover	AE
4	TCAUA0002PEZZ	R	Caution Label	AB
5	TLABM0915PEZZ	R	Model Label	AD
6	*—— Not Used ——*			
7	LCHSM0029PEZZ	R	Chassis Frame	AL
8	*—— Not Used ——*			
⚠9	QACCZ3001PEZZ	R	AC Cord	AQ
10	QEARC1414PEZZ	R	Wire, Grounding Strap	AK
11	VSP0080P-H3WA	R	Speaker, (SP301, SP302)	AM
12	LHLDC0001PEZZ	R	Degaussing Coil Holder	AC
13	LHLDW1033CE00	J	Wire Holder	AA
14	LHLDW1037PEZZ	R	Wire Holder	AB
15	LX-TZ0006PEFD	R	Screw, × 4	AD
16	LX-TZ0014PEFD	R	Screw, × 2	AD
17	LX-TZ3004CEFD	J	Screw, × 10	AA
18	LX-TZ3011CEFD	J	Screw, × 1	AA
19	PSPAG0004PEZZ	R	Wedge (Gum), Yoke Positioning, × 3	AB
20	PSPAG0010PE00	R	Spacer, × 2	AD
21	XTASD40P20000	J	Screw, × 7	AA
22	XTPSD50P25000	J	Screw, × 1	AA
⚠23	RCiLG0031PEZZ	R	Degaussing Coil, (L799)	AN
24	LHLDK0002PEK0	R	AC Cord Holder	AA
25	LHLDW0014PEKZ	R	Wire Holder	AB
26	LHLDW1047PEZZ	R	Wire Holder	AB
27	JBTN-0076PESA	R	Button, Main Power Sw.	AC
28	LHLDW1009PEZZ	R	Wire Holder	AA
29	LHLDZ0063PEZZ	R	HV Wire Holder	AD
30	LHLDF0020PEZZ	R	VCJ PWB Holder	AF
31	LX-TZ3029CEFD	J	Screw, × 2	AA
32	XTASD40P16000	J	Screw, × 1	AA
33	LX-CZ3001CEFD	J	Screw, × 2	AA
34	LHLDW1046PEZZ	R	Wire Holder	AB
35	LANGK0084PEFW	R	Line Filter Angle	AG
36	TLABZ0084PEZZ	R	POP Label	AK
37	LHLDW1060PEZZ	R	Wire Holder	AA
39	LHLDW1002PEZZ	R	Wire Holder	AB

—— End of CABINET AND MECHANICAL PARTS ——

MODEL VT-2118M CABINET AND MECHANICAL PARTS

VT-2118M型：壳罩与机械机构零件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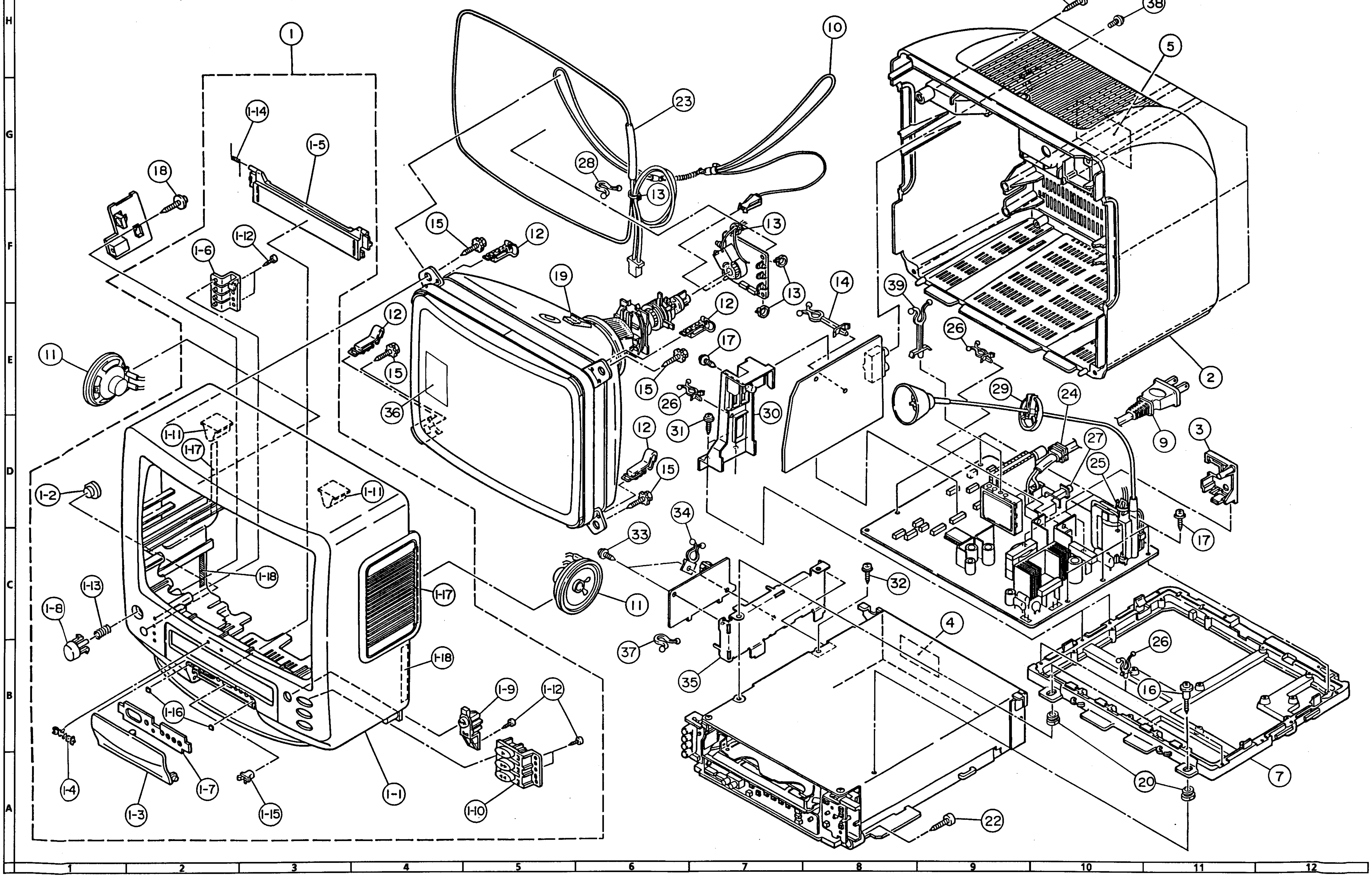
MODEL VT-1418M CABINET AND MECHANICAL PARTS

VT-1418M型：壳罩与机械机构零件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CABINET AND MECHANICAL PARTS
MODEL VT-2118M

Ref. No.	Part No.	★	Description	Code
1	CCABA2230WEV0	R	Cabinet Complete Ass'y	BL
1-1	*Not Available*	–	Cabinet-Front	—
1-2	GCOVA0051PESA	R	Cover, R/C	AD
1-3	GDORF0152PESA	R	Door	AG
1-4	HBDGB3106CESB	J	SHARP Badge	AF
1-5	HDECQ0037PESA	R	Cassette Flap-Door	AE
1-6	HDECQ0032PESA	R	LED Cover	AL
1-7	HiNDP0197PESA	R	Indicator (Indoor)	AE
1-8	JBTN-0137PESA	R	Button, Power	AD
1-9	JBTN-0147PESA	R	Button, Eject/Stop	AD
1-10	JBTN-0138PESA	R	Button, PB/FF/REW	AE
1-11	LHLDZ0069PEZZ	R	Holder, ×2	AB
1-12	LX-TZ3004CEFD	J	Screw, ×4	AA
1-13	MSPRC0005PEFW	R	Button Spring	AA
1-14	MSPRD0123AJFJ	J	Cassette Frop-Door Spring	AB
1-15	PKAi-0001PE00	R	Door Latch	AF
1-16	PSPAG0009PE00	R	Spacer, ×2	AB
1-17	PSPAH0090PE00	R	Spacer, ×2	AB
1-18	PSPAH0083PE00	R	Spacer, ×2	AC
1-19	PSPAH0080PE00	R	Spacer, ×1	AD
1-20	PSPAH0089PE00	R	Spacer, ×4	AC
1-21	PSPAH0061PE00	R	Spacer, ×1	AB
1-22	LHLDZ0046PEZZ	R	Bonding Boss, ×4	AC
1-23	LHLDZ0015PEZZ	R	Bonding Rib, ×2	AD
1-24	LANGK0083PEFW	R	Angle	AC
1-25	XTASD30P08000	J	Screw	AA
1-26	XTPSD40P25000	J	Screw	AA
1-27	LHLDZ0078PEZZ	R	CRT Holder, ×2	AD
1-28	LHLDZ0079PEZZ	R	CRT Holder, ×2	AD
1-29	XTASD40P20000	J	Screw, ×16	AA
2	GCABB2199PEKA	R	Cabinet-Rear	BG
3	GCOVH0019PEZZ	R	AC Cord Cover	AE
4	TCAUA0002PEZZ	R	Caution Label	AB
5	TLABM0922PEZZ	R	Model Label	AD
6	*Not Available*	–	Speaker Ass'y	—
6-1	GBFL-0006PEZZ	R	Speaker Buffle	AE
6-2	LANGS0005PEFW	R	Speaker Angle	AB
6-3	XTASD30P12000	J	Screw	AA
6-4	VSP0080P-H28A	R	Speaker (SP301, SP302)	AM
6-5	PSPAH0091PE00	R	Spacer	AC
7	LCHSM0029PEZZ	R	Chassis Frame	AL
8	—— *Not Used* ——			
⚠9	QACCZ3001PEZZ	R	AC Cord	AQ
10	QEARC2101PEZZ	R	Wire, Grounding Strap	AK
11	XTASD40P16000	J	Screw, ×4	AM
12	LHLDC0001PEZZ	R	Degussing Coil Holder	AC
13	LHLDW1033CE00	J	Wire Holder	AA
14	LHLDW1037PEZZ	R	Wire Holder	AB
15	LX-TZ0006PEFD	R	Screw, ×4	AD
16	LX-TZ0014PEFD	R	Screw, ×2	AD
17	LX-TZ3004CEFD	J	Screw, ×10	AA
18	LX-TZ3011CEFD	J	Screw, ×1	AA
19	PSPAG0003PEZZ	R	Wedge (Gum), Yoke Positioning, ×3	AB
20	PSPAG0010PE00	R	Spacer, ×2	AD
21	XTASD40P20000	J	Screw, ×8	AA
22	XTPSD50P25000	J	Screw, ×1	AA
⚠23	RCiLG0364CEZZ	J	Degaussing Coil, (L799)	AV
24	LHLDK0002PEK0	R	AC Cord Holder	AA
25	LHLDW0014PEKZ	R	Wire Holder	AB
26	LHLDW1047PEZZ	R	Wire Holder	AB
27	JBTN-0076PESA	R	Button, Main Power Sw.	AC
28	LHLDW1009PEZZ	R	Wire Holder	AA
29	LHLDZ0063PEZZ	R	HV Wire Holder	AD
30	LHLDF0020PEZZ	R	VCJ PWB Holder	AF
31	LX-TZ3029CEFD	J	Screw, ×2	AA
32	XTASD40P16000	J	Screw, ×2	AA
33	LX-CZ3001CEFD	J	Screw, ×2	AA
34	LX-WZ0015PEFD	R	CRT Washer, ×4	AB
35	LANGK0084PEFW	R	Line Filter Angle	AG
36	TLABZ0086PEZZ	R	POP Label	AK
37	LHLDW1060PEZZ	R	Wire Holder	AA
38	LANGT0022PEFW	R	Angle	AD
39	XTASD30P12000	J	Screw	AA
40	XTASD40P12000	J	Screw	AA
41	LHLDW1002PEZZ	R	Wire Holder	AB

— End of CABINET AND MECHANICAL PARTS —

INFRARED REMOTE CONTROL UNIT
RRMCG1046PESA

CABINET PARTS

Ref. No.	Part No.	★	Description	Code
	93GNR120410	R	Battery Cover	AC

— End of INFRARED REMOTE CONTROL UNIT —

SUPPLIED ACCESSORIES

ACCESSORIES

Ref. No.	Part No.	★	Description	Code
	QPLGA0011CEZZ	J	AC Plug Adaptor	AF
	RRMCG1046PESA	R	Infrared Remote Control Unit	BA
	TiNS-5342PEZZ	R	Operation Manual	AN

ACCESSORIES (*NOT REPLACEMENT ITEM*)

Ref. No.	Part No.	★	Description	Code
	SSAKA0005PEZZ	–	Polyethylene Bag	—
	UBATU0023GEZZ	–	Dry Batteries, Size AA, 2 pcs	—

—— End of SUPPLIED ACCESSORIES ——

PACKING PARTS
(*NOT REPLACEMENT ITEM*)

MODEL VT-1418M

Ref. No.	Part No.	★	Description	Code
	SPAKC5877PEZZ	–	Packing Case	—
	SPAKP0095PEZZ	–	Polystyrene Mat	—
	SPAKX0395PEZZ	–	Buffer Material	—
	TLABN0001PEZZ	–	Serial No. Label	—

MODEL VT-2118M

Ref. No.	Part No.	★	Description	Code
	SPAKC5884PEZZ	–	Packing Case	—
	SPAKP0097PEZZ	–	Polystyrene Mat	—
	SPAKX0399PEZZ	–	Buffer Material	—
	TLABN0001PEZZ	–	Serial No. Label	—

—— End of PACKING PARTS ——

EXTENSION CABLES
(*Use for servicing VCR unit*)

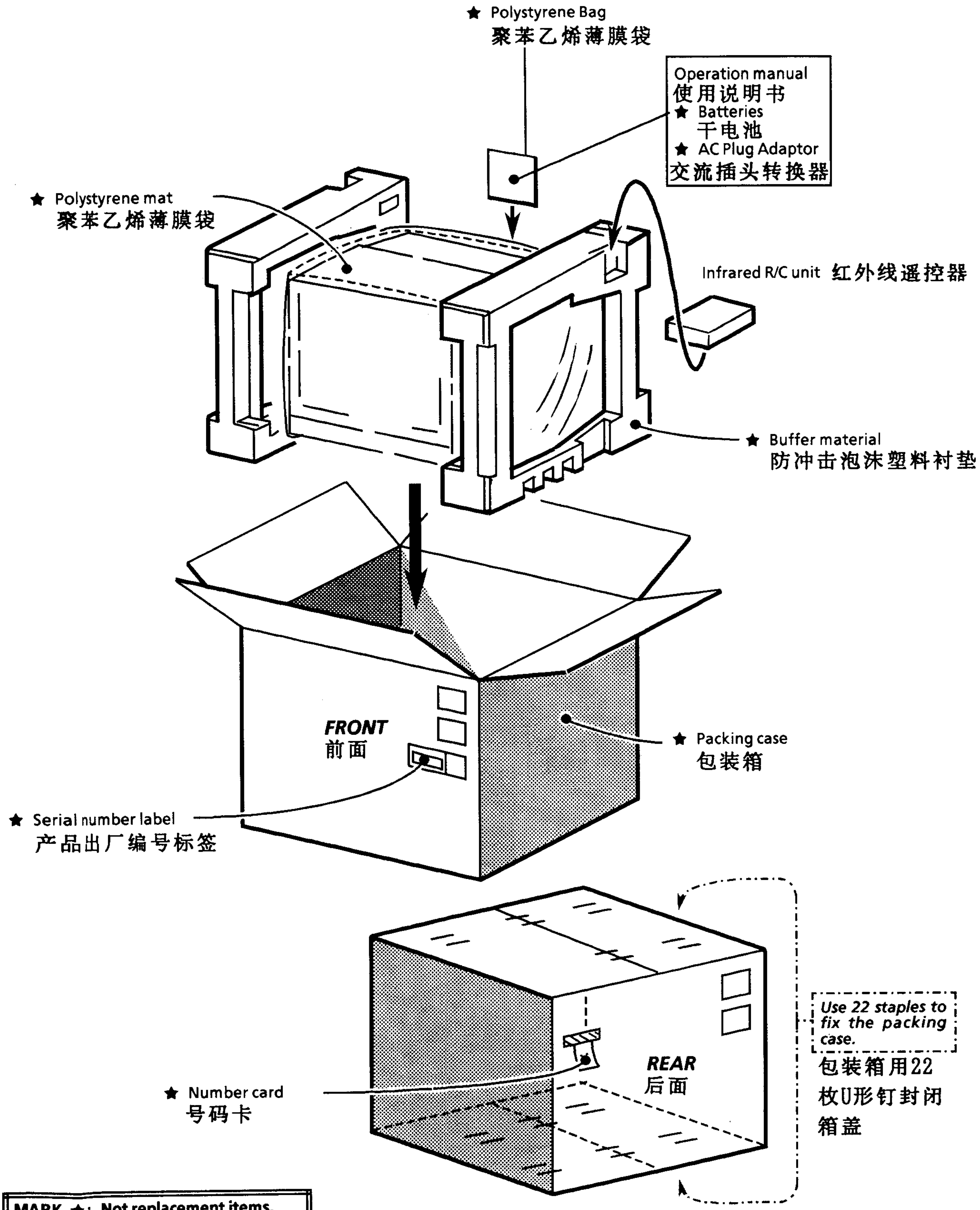
Ref. No.	Part No.	★	Description	Code
	QCNW-3778CEZZ	J	Extension Cable (AB to JA)	AS
	QCNW-3780CEZZ	J	Extension Cable (AC to LA)	AS

—— End of EXTENSION CABLES ——

PACKING OF THE SET
包装方法

•**Setting positions of the knobs**
出厂包装时的旋钮设定位置

Power SW 电源开关	OFF


★ Polystyrene Bag
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使用说明书
★ Batteries
干电池
★ AC Plug Adaptor
交流插头转换器
★ Polystyrene mat
聚苯乙烯薄膜袋
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★ Packing case
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★ Serial number label
产品出厂编号标签
★ Number card
号码卡
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Use 22 staples to fix the packing case.

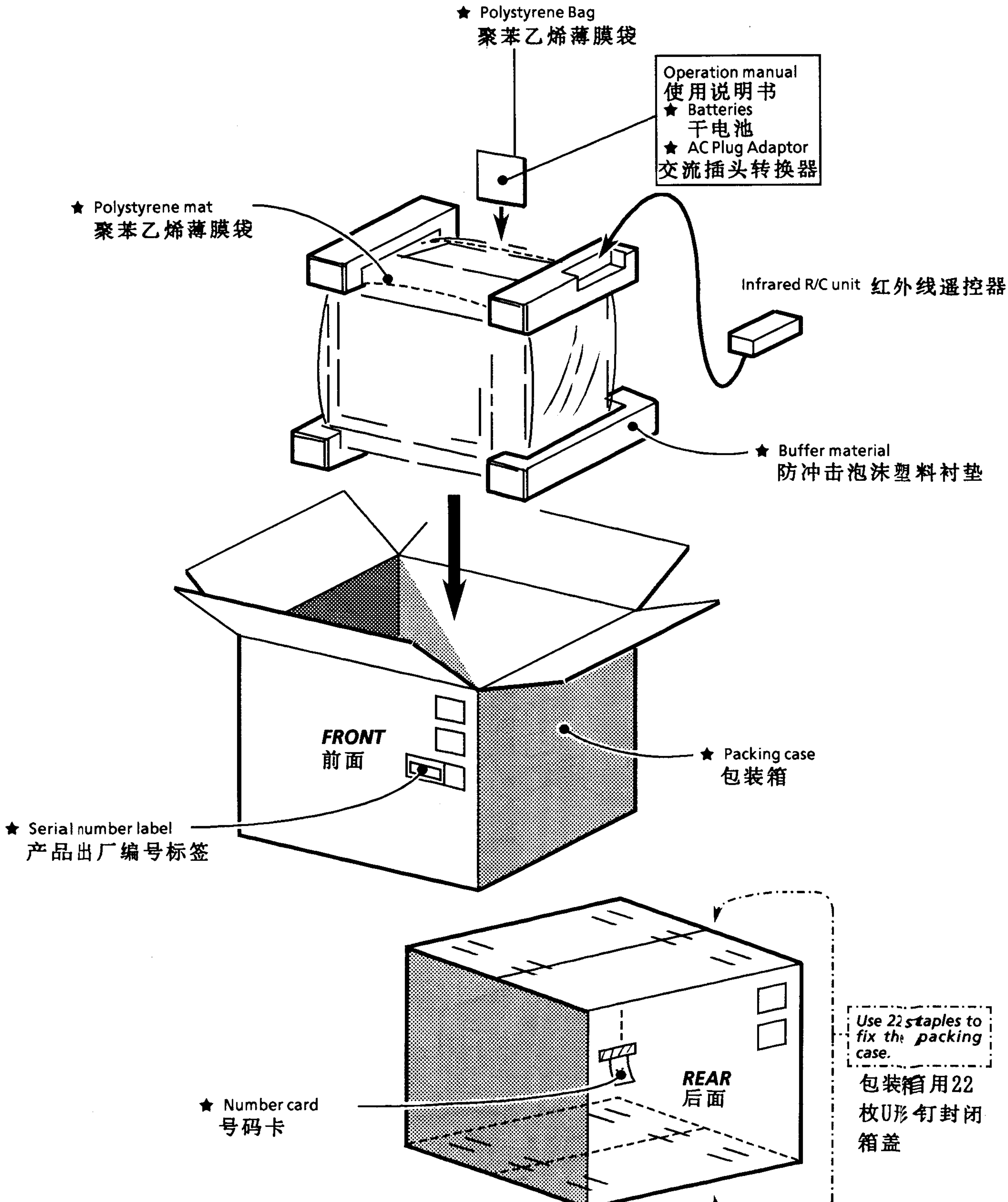
包装箱用22枚U形钉封闭箱盖

MARK ★: Not replacement items.
★记号者为非更换品目。

PACKING OF THE SET
包装方法

•Setting positions of the knobs
出厂包装时的旋钮设定位置

Power SW 电源开关	OFF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聚苯乙烯薄膜袋
Infrared R/C unit 红外线遥控器
★ Buffer material
防冲击泡沫塑料衬垫
FRONT
前面
★ Packing case
包装箱
★ Serial number label
产品出厂编号标签
Use 22 staples to fix the packing case.
包装箱用22枚U形钉封闭箱盖
REAR
后面
★ Number card
号码卡

MARK ★: Not replacement items.
★记号者为非更换品目。